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ERP FIXERS

What to expect when migrating finance from SAP ECC to SAP S/4HANA

10 "must-know" changes to ensure a seamless transition

Presented by Winshuttle and ERP Fixers

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Executive Summary

SAP has announced that they will no longer support ECC ERP systems beginning in 2025 and from that date, will only offer and support SAP S/4HANA ERP systems. In the ensuing years, the majority of companies will need to migrate from their soon-to-be-obsolete ECC systems to S/4HANA, and this includes transitioning their finance operations. Successful migration of finance from one to the other requires careful planning, a clear understanding of the journey your data takes before, during, and after migration and knowledge of the tools and resources that are available from SAP and other vendors that can make your transition from SAP ECC to SAP S/4HANA easier.

This paper is intended to provide a transition team with an idea of the scope of the migration task and highlights some areas where we have seen customers and clients struggle during the process. In it, we help identify areas that might need extra attention, including:

- Some of the critical preparation tasks that need to be considered and planned for around data cleansing and archiving.

- Highlights of preparing financial master data and some of the changes you will need to make throughout the migration.

- Key considerations when preparing to implement Universal Journal (ACDOCA)

- What the mandatory implementation of Material Ledger in SAP S/4HANA means for your business and how to prepare for it whether you have implemented it in SAP ECC or are waiting until you move to SAP S/4HANA.

- The changes that are coming in CO-PA and how it will affect your accounting and reporting.

While SAP has worked hard to provide a comprehensive set of tools that you can use to migrate from SAP ECC to SAP S/4HANA, there are still processes that they do not cover. In this paper, we point out specific areas where Winshuttle software and solutions can automate and streamline particular data management and cleansing activities.

Also, you will have many options for how you choose to execute the transition. These include using in-house experts on your SAP team, hiring an outside systems integrator who oversees all aspects of the migration, or possibly a combination of both. Whatever path you choose, the experts at ERPfixers can help you determine the best route to make your migration from SAP ECC to SAP S/4HANA as smooth, sustainable, and cost-effective as possible.

Introduction

Migrating from SAP ERP Central Component (SAP ECC) to SAP S/4HANA is one of the most complex challenges facing many businesses and their finance organizations in the coming years. Though many companies have already completed this journey, the vast majority of large enterprises have only recently begun the process of planning and preparing their organizations for the migration to the new system.

This white paper is intended to help those responsible for planning and managing the finance migration from SAP ECC to SAP S/4HANA understand the challenges and choices involved in making the finance transition as smooth as possible. To help organizations through the journey, ERPfixers and Winshuttle have teamed up to provide expert views on the tools, tricks, and processes that can help companies efficiently and effectively migrate their finance data and operations from SAP ECC to SAP S/4HANA.

About Winshuttle

Winshuttle has been automating SAP ERP processes for over 16 years, helping companies around the world improve the efficiency and effectiveness of their SAP processes. Winshuttle's software solutions offer significant benefits over manual data processes and can help improve the speed, accuracy, and quality of migrations from SAP ECC to SAP S/4HANA while allowing organizations to maintain compliance with internal and external policies and procedures. Given the complexities and changes these migrations require, it is imperative that organizations put in place rigorous governance and clear approval workflows to document every step of the migration process. Nowhere is this truer than with an organization's financial data. In addition to Winshuttle Studio software helping to automate many SAP migration preparation and data cleansing steps, Winshuttle Foundation platform also enables teams to use forms for managing their data preparation and migration as well as delivering auditable review and approval processes.

About ERPfixers

ERPfixers connects SAP users worldwide with immediate access to highly-skilled independent consultants across all SAP solution areas. Our mission is to offer reliable, tailored, and cost-effective SAP support, ranging from solving single-system questions to longer-term, bespoke business support, offered both on- or off-site, short- or long-term. In addition, ERPfixers offers strategically valuable SAP optimization assessments, including for SAP S/4HANA migrations. We strive to pass our SAP knowledge on to business users and to empower them to feel confident within the SAP system.

WINSHUTTLE SOLUTIONS

Winshuttle offers two solutions for automating SAP ERP processes before, during and after your migration:

WINSHUTTLE STUDIO
Upload/download data to SAP fast, using Excel.

Build powerful SAP-enabled Excel workbooks that enable business teams to get work done faster. From streamlining invoicing, sales orders, and other transactional processes to support migration to SAP S/4HANA, Winshuttle Studio empowers the business to make more of an impact with tools they already know.

WINSHUTTLE FOUNDATION
Digitize and streamline business processes with a powerful workflow solution built for SAP.

Add server-based functionality to Studio and empower business teams to build solutions to reduce cycle times and improve data quality across your SAP landscape—without sacrificing security or centralized control.

Chapter 1

General SAP ECC system preparation for a finance migration to SAP S/4HANA

The first step in the migration from SAP ECC to SAP S/4HANA Finance is to prepare the general SAP ECC system for the migration. But before diving in, it would be helpful to provide an introduction to what an SAP S/4HANA migration means and what it entails.
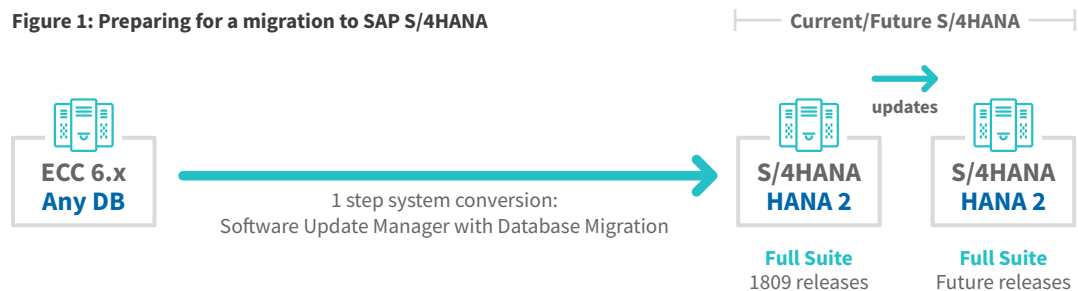
SAP S/4HANA Migration - Introduction

Migrating to SAP S/4HANA is generally a non-disruptive process to a company's current SAP setup, but the migration can cause significant business disruptions if it is not carefully planned and executed. However, it is essential to construct an effective roadmap to ensure that the project is completed successfully and on time. Specifically, there are both functional and technical considerations that are necessary to build a viable business case for an SAP S/4HANA migration. Also, SAP has announced that SAP ECC will no longer be supported from 2025 onward, so it is imperative for SAP customers to begin thinking about their migration strategy.

One of the options for migrating to SAP S/4HANA is through the Greenfield approach, which means that the system is set up from "scratch" and is the equivalent of a brand-new SAP implementation. Some SAP customers should use this approach if their current SAP ECC landscape is heavily customized (meaning that the company uses its programs as opposed to the standard SAP program). In such cases, it would typically be easier to start all over than to untangle the current setup to make it compatible with SAP S/4HANA.

Another option is the Brownfield approach, which is where the current setup on the SAP ECC landscape is converted to SAP S/4HANA. This approach is not as straightforward as the Greenfield approach because the existing structure and data will need to be converted to the SAP S/4HANA tables. This can get complicated depending on the amount of customization that has been done. To its advantage, a

Figure 1: Preparing for a migration to SAP S/4HANA

Current/Future S/4HANA

ECC 6.x
Any DB

1 step system conversion:
Software Update Manager with Database Migration

updates

S/4HANA
HANA 2

S/4HANA
HANA 2

Full Suite
1809 releases

Full Suite
Future releases

Brownfield conversion can be undertaken at any point in time during the year. It also does not necessarily need to coincide with the year-end — as is the case with implementing the SAP General Ledger, which was previously known as the "new general ledger (G/L)." As shown in Figure 1, there is a one-step system conversion from the SAP ECC system on any database

to the SAP S/4HANA system, which is on the SAP HANA database. The current release of SAP S/4HANA (at the time of writing1) is version 1809. When considering a move to SAP S/4HANA, the following factors need to be accounted for: time factor evaluation, available migration tools, and prerequisite checks.

1. Time Factor Evaluation

Before initiating a migration project, SAP customers need to understand the project life cycle as well as the associated milestones in order to plan the change management aspects — this is an important area that is sometimes overlooked during SAP projects — including the readiness of internal stakeholders to facilitate the business transition to the new system. The duration of an SAP S/4HANA migration also understandably depends on the complexity of the project. An SAP S/4HANA implementation project generally falls into one of three categories: complex, moderate, or simple. The complexity depends on several factors, including:

- The IT infrastructure and landscape
- The level of customization
- The number of years the company has been using SAP software (which typically reflects the amount of data to be converted)

These factors are discussed in additional detail below, with a specific focus on SAP S/4HANA Finance (acknowledging that other SAP functionality is migrated to SAP S/4HANA, as well). Before your final migration we recommend that several test migrations be done in a Sandbox system. The number of testing cycles and errors encountered will also factor into the duration of the project, as will the following:

a. The number of company codes and controlling areas: Company codes and controlling areas are two of the central organization units that are relevant in an SAP financial system. A higher number of company codes and controlling areas will usually lead to a more complex implementation, due purely to the amount of data that exists in the company codes and controlling areas, as well as the configuration that has been set up in these organization units.

b. Third-party applications: Third-party systems (these refer to the value-added software that an SAP customer may use in conjunction with SAP software) may contain unique and nuanced data flows into the SAP system. It is essential to ensure that these systems are compatible with SAP S/4HANA. There will also need to be a significant amount of testing involved to ensure that the data

from these third-party systems flows correctly into the new tables in SAP S/4HANA. For example, the latest version of the Winshuttle Function Module is SAP-certified and compatible with migrations to SAP S/4HANA.

c. The level of user customization: In the SAP industry, it is frequently the case that the older a system is, the more customization has been done to it by the company over time. This is because, in the early days of SAP software, certain functionalities did not exist as they do today. Therefore, companies had to program their ad hoc solutions within the system. These were not part of SAP's standard program. Any custom programs will undoubtedly require a compatibility check with SAP S/4HANA, and any necessary remediation will need to be done ahead of the migration. The higher the number of customized programs that exist in the system (such as business add-ins (BADIs), queries, report painter programs, "Z" programs, user exits, etc.), the more complex the SAP S/4HANA project will be, and the migration process will, therefore, be longer.

d. The number of landscapes and clients: A customer with the three standard landscapes (that is, development, quality assurance (QA), and production) will require less time to migrate than a customer with additional systems, such as pre-production, production support, training, user acceptance, and special projects.

e. The number of years of financial data: A customer with a relatively stable system that has more than 15-18 years of financial data has a higher probability of data-related inconsistencies with the SAP database tables, such as the BSEG table and associated index-based tables. These inconsistencies may include data irregularities, reconciliation differences between line items and balances, reconciliation of document headers (BKPF) against line items (BSEG), and totals tables. In these cases, there will need to be several testing cycles — in a Sandbox system — to ensure that the data is consistent.

f. Industry-related functionalities: A customer that uses an industry-specific SAP system (such as for

oil and gas, insurance, retail, etc.) may require an extra amount of time to test the industry-specific functionality.

g. SAP ECC core functionality: A customer that utilizes the core SAP functionality for financials (FI), controlling (CO), materials management (MM), sales and distribution (SD), production planning (PP), and human capital management (HCM) should have a relatively more straightforward implementation (requiring less time) than customers with the less commonly used functionality for warehouse management (WM), quality management (QM), and project systems (PS).

h. Enhancement package (EHP) levels: A customer with higher enhancement package will require less effort and time than a customer that is on a lower enhancement package. This is because the higher enhancement packages (such as EHP 7 or 8) are more aligned with the SAP S/4HANA functionality than the lower packages.

i. The SAP Business Planning and Consolidation (SAP BPC) application: If a customer uses this application, which is housed in a different system, and if this customer does not plan to utilize the embedded version of SAP BPC (which is integrated in the SAP S/4HANA system), then additional effort will be needed to ensure the streamlining of data from SAP S/4HANA to the SAP Business Warehouse (SAP BW) and SAP BPC systems.

The average project time estimate for a a simple migration is 6–9 months, a moderate migration can take 8–12 months, and a complex migration will vary between 12–18 months, depending on the above factors. To reiterate, it is recommended that several test migrations are done in a Sandbox system. The number of testing cycles and errors encountered will also factor into the duration of the project.

2. Available Migration Tools

SAP offers two standard tools that are available to help with the migration process:

SAP Transformation Navigator helps customers simplify their transition to the SAP product portfolio. It consists of the following: Business Guide, Technical Guide, and Transformation Guide. SAP Transformation Navigator helps companies chart their digital transformation to SAP S/4HANA by analyzing the products and capabilities that are currently used and recommending best-suited products in SAP S/4HANA. It requires a company to answer a few questions — such as industry type, preferred product from SAP's portfolio, cloud preference, and top value drivers (for example, reducing finance or audit costs) — and subsequently lists results with recommended products, type of transition, and enabled capabilities.

The Business Scenario Recommendations (BSR) for SAP S/4HANA report uses the current SAP ECC usage information to help identify the most valuable digitized business scenarios for the enterprise. Customers can receive individual guidance and a personalized report for their lines of business to review the business scenario details and benefits. For every recommended business scenario, the BSR report explains the improved transactions, the simplification and innovation offered, the business context and drivers, the values and challenges addressed, and the SAP S/4HANA and SAP Fiori innovations.

WINSHUTTLE SOFTWARE AS A SUPPLEMENT TO THE STANDARD SAP MIGRATION TOOLS

While SAP offers a comprehensive set of tools that are designed to make the migration from SAP ECC to SAP S/4HANA as smooth as possible, there are still many areas and steps that require manual data management. In many of these cases, Winshuttle delivers a solution that helps to automate these processes and reduce the risk of human errors. Throughout this paper, we will indicate steps and processes where Winshuttle's SAP automation capabilities can significantly improve the efficiency and effectiveness of migrations.

3. Prerequisite Checks

There are some prerequisite checks that are done to ensure that the current SAP system is compatible with an SAP S/4HANA conversion. These are:

a. **SAP NetWeaver Application Server for ABAP (SAP NetWeaver AS for ABAP):** The current SAP ECC system needs to be an "AS ABAP" system only. If the existing system is on a dual-stack (AS for ABAP and AS for Java), it is not supported by SAP and will need to be split before migration.

b. **Core data services (CDS) views:** If the existing custom codes need to be adapted during the conversion, it is required to create or edit a CDS view. The "Simplification Item" and the "S/4HANA-specific code Inspector" checks can be used to analyze the custom codes and work on remediating any issues.

c. **Adobe Document Service:** The Adobe Document Service, which is used for some functionalities such as credit management, is checked for compatibility.

d. **Interoperability:** The SAP NetWeaver systems connected to SAP S/4HANA have to be on a release that is greater or equal to release 7.31.

e. **Upgrade to SAP ECC 6.0:** The source system needs to be at a minimum on SAP ECC 6.0. There is no restriction on the EHP version within SAP ECC 6.0 as it can be anything from version 1 to version 8. This is because the customer/vendor integration, which is required with SAP S/4HANA, is not supported below release SAP ECC 6.0.

f. **Unicode:** As a prerequisite for the conversion, the system needs to be on a Unicode system. SAP S/4HANA is a Unicode system, and the Software Update Manager (SUM) process does not include a "Non-Unicode to Unicode" conversion. If the source environment is not on release SAP ECC 6.0, then the Unicode and SAP ECC upgrade can be done simultaneously by doing a Combined Upgrade and Unicode Conversion (CU and UC). More information about this can be derived from SAP Note 928729.

Additional Miscellaneous Preparation Steps

There are also some miscellaneous steps that need to be completed to prepare for the SAP S/4HANA migration. These steps involve:

Reviewing redundant company codes: SAP S/4HANA conversions take the entire system into account. However, if company codes are obsolete and no longer in use, there is no point in spending any effort on these company codes. We recommend you fully archive the company code data before conversion, or mark a company code as a "Template Company Code."

Deleting sample company codes: It is good practice to delete all existing sample companies/templates before the preparation phase of an SAP S/4HANA conversion to avoid future errors with them. You can use Winshuttle to help you automate the extraction and cleansing of this data.

Deleting unwanted clients: Companies tend to have more than one multiple of the same client in their development or QA systems. Clients are typically copied for multiple reasons, such as the testing of new functionalities with production data or the initial implementation of other SAP products for prototyping purposes. It is recommended to delete these multiple entries for clients before the conversion to ensure a smooth and error-free environment. Every new client with a different set of data will lead to extra time on eliminating errors that could arise.

Planning the extension ledger settings: We recommend you plan the extension ledger settings that the company may need in the future based on any expansion or future organization requirements. Since the extension ledger is created as a layer on top of an underlying ledger, all postings from the underlying ledger will apply to the extension ledger and can be easily used, for example, to modify financial data to other accounting standards such as IFRS.

Eliminating the "Storage Location MRP" view: The "Storage Location MRP" view is not supported in SAP S/4HANA. Companies need to look to alternatives, such as planning on the "MRP area" level instead.

There are conversion pre-checks that can help to discover any errors. Companies can execute Report MRP_AREA_STORAGE_LOC_MIGRATION if the pre-checks detect that a "Storage Location MRP" view is used. The report checks prerequisites, such as MRP types, lot-sizing procedures, and MRP areas in customizing. If all the requirements are fulfilled, then the report generates material master records for planning on the "MRP area" level using the storage location's material records.

Executing a table dump: It is good practice to execute a table dump of the critical tables to address any inconsistencies after the project goes live. Some of the key tables are COEP, COSP, MSEG, MKPF, EKPO, BKPF, BSEG, LFA1, LFB1, VBAK, COEP, COSP, MARV, PROJ, PRPS, MARA, COBK, FAGLFLEXA, AUFK, and AUFM.

Reviewing SAP Fiori apps: With the release of 1809, SAP has introduced several dashboard apps that provide a view of a company's financial data in a single screen. These include General Ledger Overview, Asset Accounting Overview, Accounts Payable/Accounts Receivable Overview, and Order-to-Cash Performance Monitor. A company should review these apps and prepare a list of apps that are needed.

Chapter Summary

There are many factors to be aware in planning for an SAP ECC to SAP S/4HANA Finance migration. You must:

- Plan for what the migration project life cycle will look like in your organization

- Know the factors that will affect this process the most

- Understand the extent of your SAP system landscape including third-party applications

- Familiarize yourself with the standard SAP migration tools and where other applications, like Winshuttle solutions, can fill any gaps that might exist

- Conduct any prerequisite checks to ensure compatibility

- Catalog all the steps necessary for a successful migration in your roadmap

Chapter 2

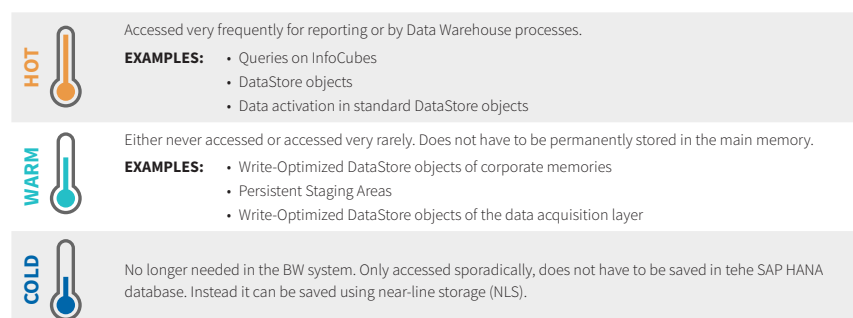## Data Preparation for a Finance Migration from SAP ECC to SAP S/4HANA

With the explosive growth of data in businesses in recent years, more resources are required to scale up the storage of this ever-increasing data. However, merely adding more database resources to keep up with this requirement is not the solution. Instead, a company needs to implement an effective data management strategy by analyzing the usefulness of old data, the frequency of accessing this data, and the cost of storage. A data management strategy should be in place in order to satisfy the requirements of data accessibility, performance, and cost.

Before migrating to an SAP S/4HANA system, a company must decide what to do with obsolete data. If there is a significant amount of obsolete data that is migrated to the SAP S/4HANA system, then this will likely degrade the performance of the system. A process called "data aging," which involves shifting appropriate data within a database to gain more working memory, can address these inefficiencies. Data aging segregates the data that needs to be stored into the below categories:

- **Hot data** refers to the data that is operationally relevant.

- **Warm data** is either never accessed or rarely accessed. This data does not need to be permanently stored in the main memory of the database.

- **Cold data** is no longer accessed during normal operations. This type of data is usually only accessed for historical referencing purposes.

The "temperature" of data (see Figure 2) decides the strategy of storing the data. It can be used to horizontally partition the tables - moving data between the different partitions from "hot" to "cold" for optimizing resource consumption and performance. Hot data is stored within SAP S/4HANA's main memory, while cold data stays primarily stored on disk, but remains accessible via SQL on request. Organizations implicitly understand the usefulness of data and depending upon its value; the data should be segregated to fit into the different temperature categories. SAP recommends that companies should classify 10% as hot data, which is between 0 to 4 years old, 30% as recent data, which is between 5 to 10 years, and 60% as historical data over 10 years old.

Figure 2: Data aging segregates data by temperature as hot, warm, and cold (Source: Agilitywork)

HOT — Accessed very frequently for reporting or by Data Warehouse processes.
EXAMPLES:
- Queries on InfoCubes
- DataStore objects
- Data activation in standard DataStore objects

WARM — Either never accessed or accessed very rarely. Does not have to be permanently stored in the main memory.
EXAMPLES:
- Write-Optimized DataStore objects of corporate memories
- Persistent Staging Areas
- Write-Optimized DataStore objects of the data acquisition layer

COLD — No longer needed in the BW system. Only accessed sporadically, does not have to be saved in tehe SAP HANA database. Instead it can be saved using near-line storage (NLS).

The concept of data aging (see Figure 3) was introduced in the SAP Business Suite on SAP HANA ("Suite on HANA") and SAP S/4HANA applications. This is a tailor-made data management concept for reducing the SAP S/4HANA memory footprint, based on a framework for data aging provided by "SAP NetWeaver for ABAP." It is worth mentioning that data aging is only possible for customers undergoing an SAP S/4HANA database migration from SAP ECC to SAP S/4HANA, or for customers with a lower SAP S/4HANA version (such as 1511) that are migrating to latest version (such as 1809).

Data Temperature	Solution / Feature	Storage Technology	Business Suite		S/4HANA		Business Value	Possible Actions
			any DB	HANA	On-Premise Edition	Cloud Edition		
(thermometer hot)	**Data Aging** Hot/Current	SAP HANA in-memory	◯	✓1	✓	✓	**Optimizing HANA data foootprint** Hot/Current Active/operationally-relevant data stored within HANA memory. Hot data is frequently accessed and has higher performance requirements.	Write, Read, Update, Delete
(thermometer cold)	**Data Aging** Cold/ Historical	SAP HANA on disc	X	✓1	✓	✓	**Optimizing HANA data footprint** Cold/Historical Data which is closed/cleared and is moved to cold partitions on disk	Write, Read, Delete
(thermometer archived)	**Archived Data (ADK) + SAP ILM RM**	Seperate WORM, disk or DB file-based storage	✓	✓	✓2	✓2	**HANA Enabler & Data Volume Management** Data which is read only/infrequently accessed (histroical) is moved to ADK files (enriched with retention time) on a secure long-term storage (important before migrating to SAP Business Suite on HANA or SAP S/4HANA)	Write, Read, Destruction function available using SAP ILM

✓ Generally available X Not available ◯ Different solution approach

[1]Available for selected basis objects only

[2]In e.g SAP S/4HANA Finance only partially available

Figure 3: A data aging framework for migrating SAP data to SAP S/4HANA (Source: SAP)

Data Cleansing

One of the essential steps that should be performed before migrating from the SAP ECC system to SAP S/4HANA is the cleansing of the data. This preparatory activity is frequently overlooked, which tends to cause a lot of preventable issues and inefficiencies going forward. Over time, and despite available, suitable system controls, an SAP system is likely to accumulate many data inconsistencies, for several reasons, including:

- Existing data that does not have a consistent format as it is derived from various sources
- A decentralized master data management team
- Changes in compliance rules and regulations leading to new sets of data — such as a country moving from value-added tax (VAT) to goods and services tax (GST), which renders much of the old tax code and related settings (e.g., account keys and mapping rules) redundant
- Changes in the data-keeping format — such as good manufacturing practices (GMP) compliance for pharmaceutical industries

ISSUE	EXPLANATION
Duplicates	The same data entity (fixed asset, vendor, customer, etc.) that is created multiple times in the same system
Obsolete or Inactive Records	Data that is not up to date or is no longer active (e.g., vendors that are no longer purchased from)
Incorrect Data	Inconsistencies related to typing or data entry errors — such as spelling errors and reference inconsistencies (e.g., 2nd Street vs. Second Street, or Inc. vs. Corporation)
Incomplete Records	Missing data in the current legacy system

The following data cleanup activities should be taken before the data migration:

- **Data duplication:** Identify all the duplicates in the SAP system.
- **Data verification:** Verify and validate that all contacts are still valid for email and direct mail marketing.
- **Data normalization:** Normalize and standardize fields into the new data scheme if any format changes have been made.
- **Append data:** Add or edit fields to complete records with missing data.
- **Data governance:** Establish data governance rules for the SAP S/4HANA or third-party system to minimize the need for data cleansing in the future.

Evaluation and Analysis

Before carrying out data cleansing activities, a company should evaluate and analyze which data in the current system is invalid and, therefore, should be included in a data cleansing exercise. SAP provides the following options for duplicate recognition and the creation of data cleansing cases:

- Data profiling with SAP Data Services, which is implemented over the Data Services Designer developer tool
- User-defined programs
- Interface by business address services (BAS) tables
- Third-party vendor applications such as Winshuttle

BUSINESS PROCESS/ SAP FUNCTIONALITY	MASTER DATA TYPE
Asset Accounting	Fixed Assets Master & Balances. This also includes Capital and Operational Leases
Accounts Receivable (AR)	Customer Master
Cash Management	Bank/ Bank Accounts
Cost Control/Controlling	Cost Centers
Cost Control/Controlling	Internal Orders
Grants Management	Sponsor
Grants Management	Sponsored Programs
Grants Management	Open Grant
Purchasing & SRM/MM/FI	Vendor Master
General Ledger (G/L)	General Ledger Account
Accounts Payable (AP)	Vendor Master
FSCM	Business Partner
Tax Codes	Sales/Purchase/Withholding taxes, Excise Master Data correction
Housebank	Bank Master Data
MM	Material Master

Data archiving

Before migrating to SAP S/4HANA, it is best to clean up the SAP database and archive any outdated transactional data. SAP recommends the deployment of a data archiving solution to decrease the volume of transactional data that is migrated to the new system. Reducing the amount of data that is migrated from SAP ECC to the new SAP S/4HANA system can deliver significant benefits, including:

- Shorter timeline for the migration and future upgrade projects
- A less complex data migration
- Substantially less production downtime and associated risk

The Decision Tree shown in Figure 4 highlights a typical decision process involved in data archiving.

Is the data still required? —YES→ **Can the data be summarized?** —YES→ **Summarize the data**

NO↓ (from "Is the data still required?") → **Deactivate the creation of the data**

NO↓ (from "Can the data be summarized?") and YES↓ (from "Summarize the data") → **Can the data be deleted?**

Can the data be deleted? —YES→ **Delete data!**

NO↓ → **Can the data be archived?**

Can the data be archived? —YES→ **Archive data!**

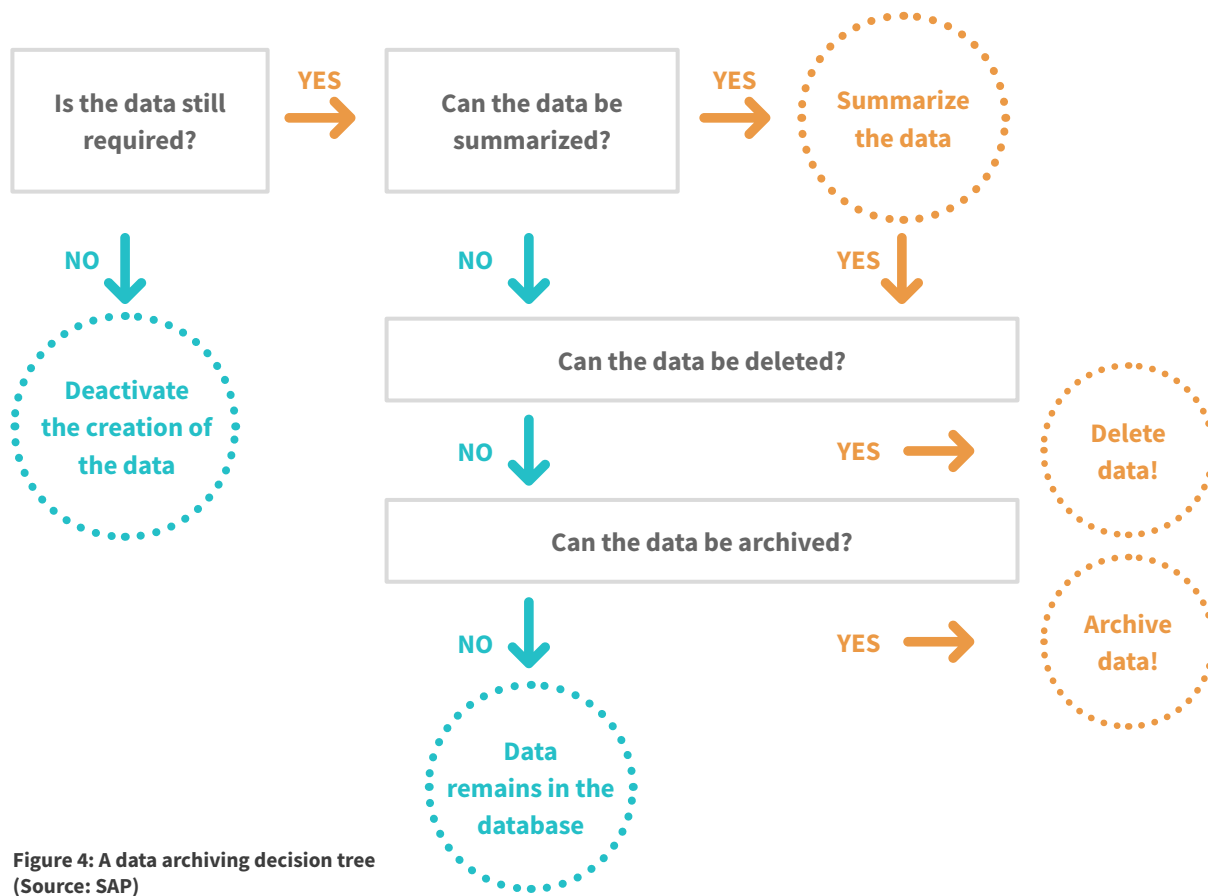NO↓ → **Data remains in the database**

Figure 4: A data archiving decision tree (Source: SAP)

Managing Data Volume

Data that is static in nature or that is no longer needed from a business standpoint can be archived easily. The archived data can be accessible in the "Suite on HANA" (when the SAP ECC system is housed in an SAP HANA database) and SAP S/4HANA systems, via the standard SAP tools and interfaces, such as the Archive Information System. Customers can also delete data using the data destruction functionality of the SAP Information Lifecycle Management solution.

Archiving and aging are similar concepts with the same end goal, reducing the data load on the live SAP HANA database, to increase data efficiency and reduce cost. However, it must be ensured that the aging and deletion of archived material documents does not happen in parallel.

Using Compliant-Based Archiving

Using a compliant-based archiving tool is essential for managing regulatory requirements and data privacy standards, such as GDPR-compliant data management. This kind of compliance solution is necessary for regulated and litigious industries such as the financial services, healthcare and life sciences, and public sector industries. There are several third-party tools available to meet these regulatory requirements, such as Iternity and Smarsh.

Removing Unstructured Content from the Database

It is essential for companies to consider their unstructured content. If the storage location of 'Generic Object Services (GOS)'* attachments is not configured, all unstructured content that users have added via GOS over time will have been recorded in the database and will add to the overall volume. Companies can check the size of the SOFFCONT1 table in this context, or they can check the Control Table DRAO for SAP DMS (Document Management System) as well.

* GOS = This is the icon commonly in the top-left of an SAP GUI screen, which provides different functions such as adding attachments, creating document links, displaying workflows, and so on.

The data archiving procedure can be carried out in three phases (see Figure 5):

1. Creating an archive file: The "write" program writes the data to be archived from the SAP database to archive the files.

2. Deleting data: The deletion program first reads the data in the archive file and then deletes the corresponding data records from the database.

3. Moving the archive files to a separate storage medium: As an optional step, the archive files can be securely stored in another storage medium.

Refer to SAP Note 2545209 for information on accessing archived FI data after upgrading to SAP S/4HANA.

SAP®

DATA RETRIEVAL

ARCHIVING FUNCTIONALITY DELIVERED BY SAP

ARCHIVE DATA FILES

**ARCHIVE SERVER &
STORAGE (3RD PARTY)**

ARCHIVING OBJECTS

SAP DB / HANA

**FI_DOCUMENT
IDOC**

SAP APPLICATION

CONTENT MANAGER

HTTP INTERFACE

DATA ARCHIVING PROCEDURE
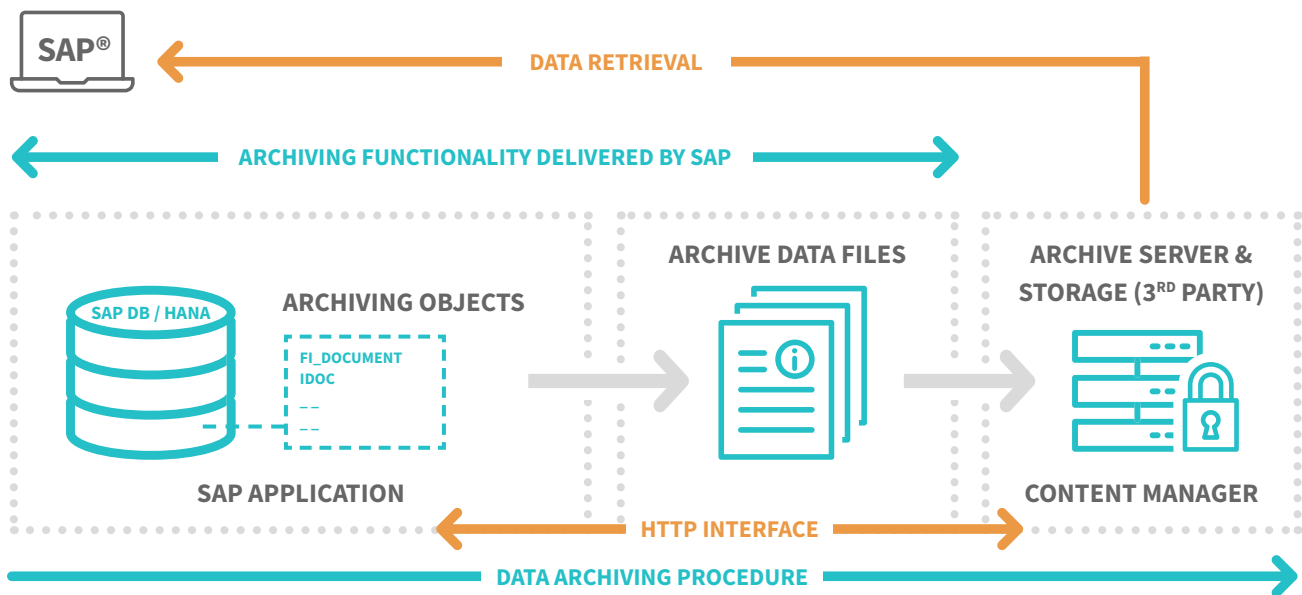
Figure 5: The three phases of the SAP data archiving procedure (Source: Mouritech)

Chapter Summary

As you prepare your financial data for migration from SAP ECC to SAP S/4HANA, it is important to consider the following:

- The age and "temperature" of your data to determine what should be archived versus migrated

- The best approach to cleansing the data you intend to migrate

- The extent of the cleansing effort ahead of you

- The most efficient tools and processes for cleansing your data

- The amount and value of the data you need to archive

- The preparation of financial master data to match the changed functions in SAP S/4HANA Finance

Chapter 3
Financial master data preparation and changes

In preparing data for migrating financial operations from SAP ECC to SAP S/4HANA, there are minimum activities that occur during the pre-conversion phase for period closing, reconciliation checks, and transactional data checks. It is also important for a company to prepare for the migration of financial operations by modifying its existing master data to meet the changed functions in SAP S/4HANA, as well as to prepare their transactional data changes to minimize migration errors. The activities that can be carried out to prepare the transactional and master data for migration, are explained below.

Transactional Data Preparation

The activities to prepare the transactional data for migration is as follows:

1. **FI transactional data consistency check:** FI consistency checks compare the G/L accounts to identify any inconsistencies. This includes comparing open items and account balances.

2. **Comparison of documents and indexes:** One of the important checks between documents and indexes is the checking of open items from secondary index tables BSIS and BSAS and ensuring that they have the same XOPVW indicator as the account master table SKB1.

3. **Cross-module reconciliation check:** This is done against the G/L to ensure that the balance reconciles with the AP, AR, fixed assets, and MM data, in all ledgers and valuations.

4. **Reconciliation of the document tables:** Table BKPF is reconciled with the index tables such as BSIS/BSAS, BSID/BSAD, and BSIK/BSAK.

5. **Examination of missing document headers:** Examine missing headers from table BKPF.

6. **Reconciliation of document headers:** Reconcile table BKPF against line items (BSEG).

HOW WINSHUTTLE CAN HELP

Winshuttle Studio can often be the best option for correcting any variances or errors that are uncovered during the transactional data preparation step. Enabling the functional users who understand the accounting and variance processes to make the necessary changes, without needing to know the SAP GUI, frees up SAP experts for other aspects of the migration.

By employing Winshuttle Foundation for review and approval workflows, organizations can also rest assured that the process steps put in place for the data preparation and cleansing are being followed and are auditable.

Financial Master Data Preparation

The Universal Journal being introduced in SAP S/4HANA (see chapter 4) has numerous implications for financial master data. A significant update and change to data in the G/L includes how master data is created: Depending on the business scenario and the line of business, a company would likely need to create new G/L accounts before or during the SAP S/4HANA conversion to meet these requirements:

- **Creation of Cost Elements for Account-Based CO-PA Assessment Cycle:** After transitioning from costing-based to account-based CO-PA, a company will need to modify its assessment cycles. It will need to create additional cost elements that represent equally the value fields, which are assigned to the PA transfer structure. The number of G/L accounts created will depend on the number of value fields the company is currently using in costing-based CO-PA.

- *Creation of Cost Elements for Internal Order Settlement to CO-PA:* After transitioning to account-based CO-PA, modifications in the allocation structure will be required to include new settlement cost elements that existed in the PA transfer structure.

HOW WINSHUTTLE CAN HELP

The implications of these changes mean that companies will need to create new G/L accounts for each secondary cost element in SAP ECC. Winshuttle software's ability to work in SAP ECC and SAP S/4HANA can help speed up the creation process by allowing users to reference existing SAP ECC data, perform data conversion in Microsoft Excel, and then create the new G/L accounts in SAP S/4HANA via transaction code FS00.

Preparing for the Transition to Business Partner

The validation of complete data in the Customer Master and Vendor Master objects is critical to ensure that there is an error-free customer/vendor integration (CVI). A few important central data checks that need to be conducted before embarking on conversion are:

Organization checks

- The Industry field must exist (Table TB038)
- The Legal Forms field must exist (Table TB019)
- The Legal Entity field must exist (Table TB032)

Address checks

- Validation of bank data fields, such as Bank Key must be available
- Validation of address data, such as Title Forms of Address (Table TSAD3)
- E-mail fields must contain @

Tax number checks

- Tax type must exist in the Tax Number Categories (Table TFKTAXNUMTYPE)

HOW WINSHUTTLE CAN HELP

Winshuttle software can support the various data checks outlined to the right. By enabling users to quickly and easily extract, check and validate the data fields, Winshuttle makes this portion of migrations to Business Partner faster than having to conduct the checks manually.

HOW WINSHUTTLE CAN HELP

Depending on system configurations and how the bank account data is managed, Winshuttle Studio may be able to help you through the process of correcting errors and variances in financial master data.

Some of the errors that are encountered during the CVI process errorsare as follows:

- **Existing account number not valid:** Bank account number (KNBK-BANKN) is defined with a length that is different from the specified country's settings.

- **Invalid bank control key:** Bank control key (KNBK-BKONT) is in the wrong format.

- **Bank key doesn't exist:** Bank key (KNBK-BANKL) specified for a customer/vendor bank account doesn't exist.

- **Account holder doesn't exist for country:** Account holder (KNBK-KOINH) is missing in the Bank Details record.

- **Customizing issues (missing or incomplete customizing):** Tax number categories, industries, address forms, departments, legal forms, and so on, are missing or incomplete.

- **Master data quality issues:** The incorrect format is used for dates, tax codes, trading partners, bank keys, bank account numbers, postal code, or bank control.

- **Nonexistent/incorrect tax and VAT values or bank numbers.** Value specified for a customer/vendor tax or bank number doesn't exist.

It is important to check for consistency in the customer and vendor master data, and fix any issues accordingly so that these errors do not occur during the CVI process.

Example Errors

1. **Tax number category does not exist:** Tax numbers are sourced from the "Control Data" tabs of the Customer (XD03) and Vendor (XK03) masters, where the country code of the tax number category represents the country code of the business partner, and the numerical sign represents the reference number of the tax number field (see Figure 6). For example, "KE1" denotes the "Tax Number 1" field of the Chinese customer or vendor. A "0" reference number always represents the "VAT Reg. No." field. When the code creates an error in the system, it means that the entry does not exist in table TFKTAXNUMTYPE. This means that either an SAP Note needs to be implemented or the tax category needs to be manually maintained and assigned to the checking rules via table TFKTAXNUMTYPE and maintenance view V_TFKTAXNUMTYPE.
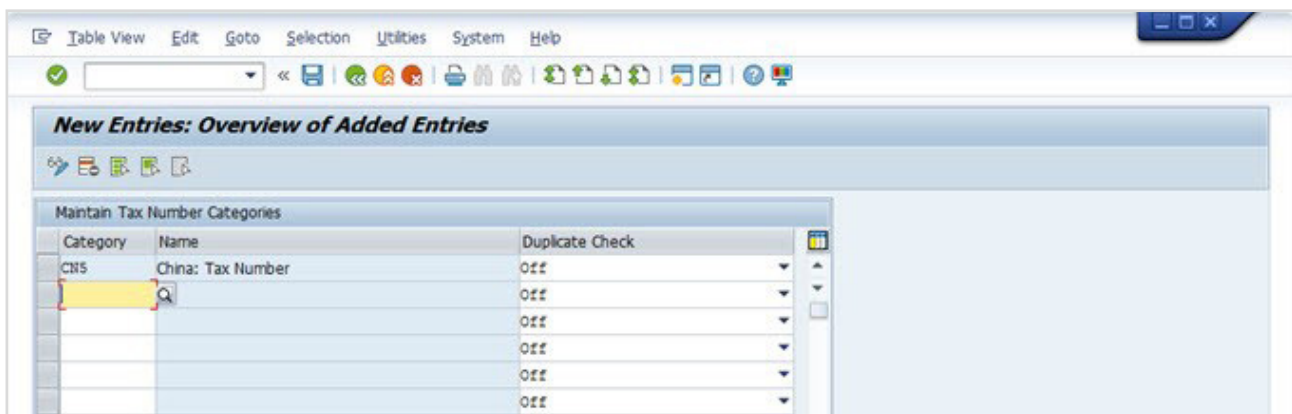

Figure 6: Error for tax number category that does not exist

2. **Address xxx not designated for organizations.** This error means that the business address service needs to be maintained as a gender-specific title (see Figure 7).
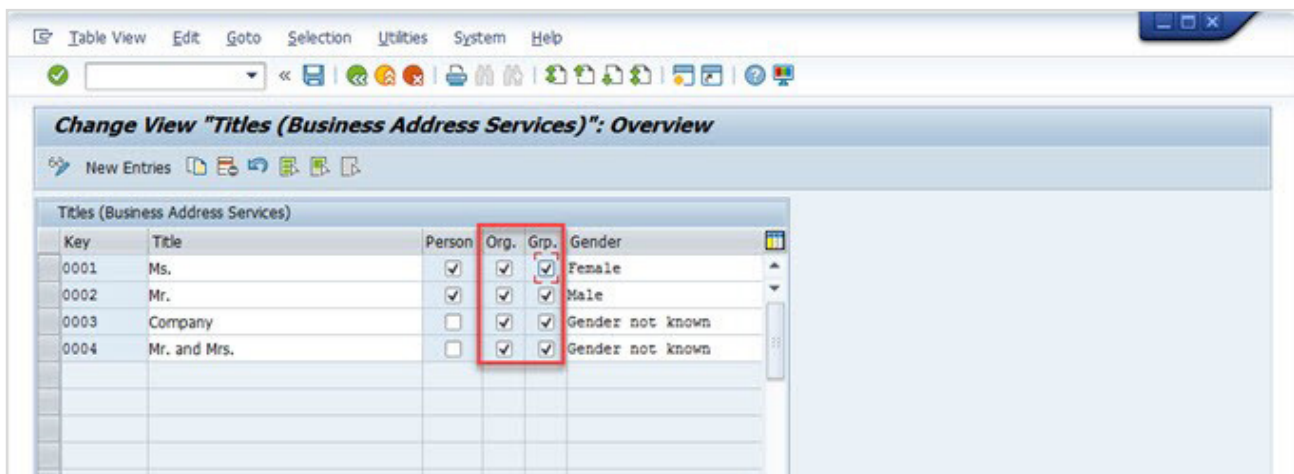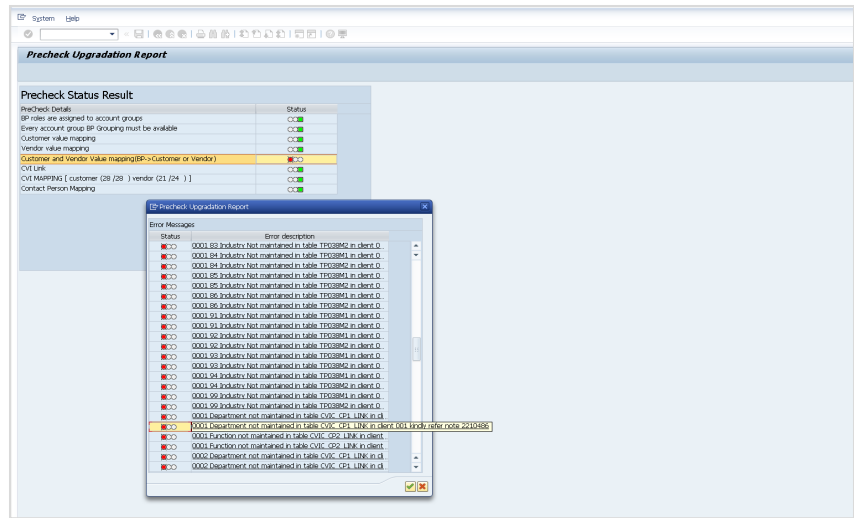

Figure 7: Error for business address service not designed as gender-specific

3. Specify an industry. This error means that the industry that exists in the business partner has not been maintained in the table (see Figure 8).

Figure 8: Error for industry not existing in the business partner master data

The following activities will need to be performed to ensure the completeness of the business partner master data:

Attribute assignment for contact person

a. Activate Assignment of Contact Person

b. Assign Department Numbers for Contact Person

c. Assign Functions of Contact Person

d. Assign Authority of Contact Person

e. Assign VIP Indicator for Contact Person

Attribute assignment for customer

f. Assign Marital Status

g. Assign Legal Form to Legal Status

h. Assign Payment Cards

i. Assign Industries

Chapter Summary

Migrating financial master data from SAP ECC to SAP S/4HANA requires some significant changes to the data structures in SAP ECC before the conversion can be successful. These include understanding:

- The changes to how CO-PA costing elements are managed

- The changes that are coming with the shift from customer/vendor to business partner

- Expected errors and how to mitigate them during the CVI process

Chapter 4

Preparing for the Universal Journal (ACDOCA)

Conversion to SAP S/4HANA transforms the transactional data in the SAP ECC system from the various financial systems (i.e., G/L accounting, asset accounting (AA), CO, CO-PA, and the material ledger) to the new data model of the Universal Journal (ACDOCA). It reads the data from the old database tables and transfers them to the new structures, as shown in Figure 9. For example, AA line items are transferred (or converted) from the ANEK, ANEP, ANEA, and ANLP tables to the ACDOCA table. The migration of balances ensures the aggregated total amount in ACDOCA shows the same results as the total amounts in the old tables. Below is a list of tables that have been removed (or replaced) in SAP S/4HANA:

- **Index tables that have been removed or replaced:** BSIS, BSAS, BSID, BSAD, BSIK, BSAK, BSIM, FAGLBSIS, and FAGLBSAS

- **Aggregate tables that have been removed or replaced:** GLT0, GLT3, FAGLFEXT, KNC1, LFC1, KNC3, KFC3, COSS, and COSIP

- **Line-item tables removed:** FAGLFLEXA, COEP, ANEP, ANEA, ANLC, ANLP, and MLIT

- **Material ledger tables now stored in the ACDOCA table:** MLIT, MLPP, MLPPF, MLCR, MLCRF, MLCD, CKMI1, and BSIM
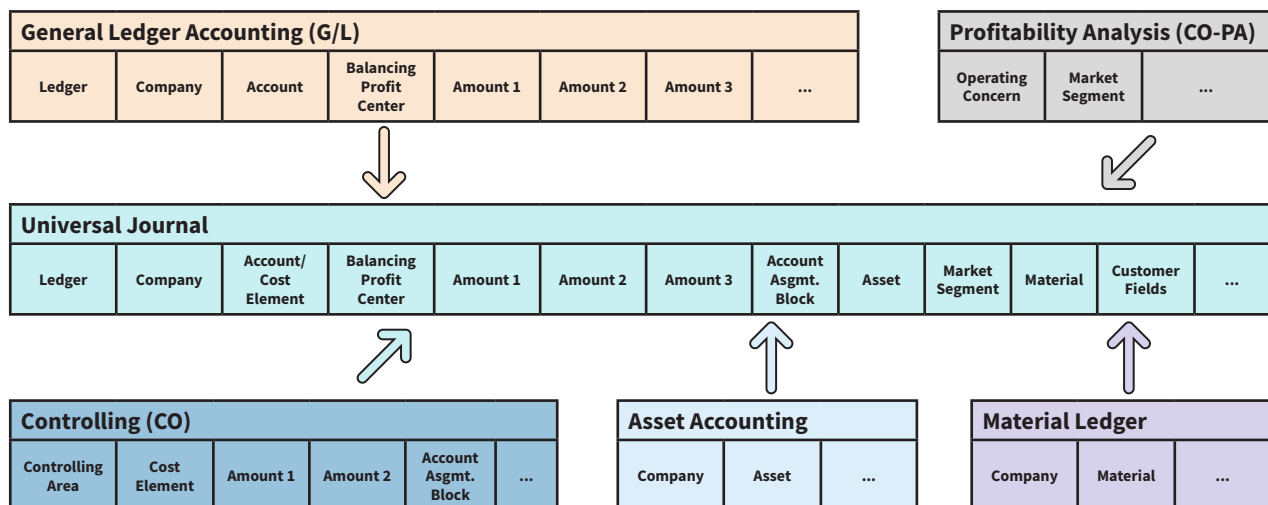
Figure 9: The transactional data from the old database tables in SAP ERP Financials is transformed to the new data model of the Universal Journal (ACDOCA) in SAP S/4HANA (Source: SAP Help)

Since the Universal Journal (ACDOCA) is a combination of multiple tables (see Figure 9), it is very likely that any inconsistencies between the ledgers, tables, or structures, such as BSEG and BSIS, can lead to a series of errors in ACDOCA.

As a part of the pre-migration checks, SAP has developed multiple tools and programs to enable users to analyze these areas and report the errors in advance, before performing the migration steps. However, even if all the pre-migration checks have been carried out, and the integrity of the data has been validated sufficiently, errors are still bound to occur. This is because the reports and programs for checking and validating can only be run in the SAP ECC source system on the old data structures, and these do not show every error that can come up during conversion to SAP S/4HANA. Most of these errors are encountered during the migration phase and are typically triggered during these migration steps:

- R20: Analyze Transactional Data
- R21: Reconciliation of Transactional Data
- R24: Check Migration of Balances
- R23: Check Migration of Journal Entry
- R24: Check Migration of Balances
- R25: Check Initial Depreciation Calculation

Some of the prominent errors encountered due to data inconsistencies are:

- BKPF entry exists, but no BSEG entry
- BSEG entries without an equivalent entry in FAGLFLEXA
- Mismatch between the index table and the backup table
- Different amounts between the entry view and G/L view
- Item is in the BSEG table but missing in the index table
- Mismatched balance for ANLC or other assets-related table

The majority of these errors are due to the following:

- Data inconsistencies existing in the source system due to inconsistent updates that have been made by custom-developed programs and interfaces
- Manual updates of the BSEG table
- Inconsistency between the BKPF and BSEG tables in the source system due to incorrect prior updates to these tables
- Problems caused by incorrect archiving of the data in the above tables — such as and error showing "BKPF entry exists, but no BSEG entry" could be triggered
- Improper customizing or master data changes — such as switching on or switching off "Open item management" without following proper procedures
- Direct updates to standard tables — such as BSEG via a function code "SAP_EDIT" in transaction SE16N
- If the classic G/L is used in the source system, and the new G/L functionality is subsequently activated, there could be inconsistencies between the two functionalities

Recommendations:
Steps Ahead of Migrating to ACDOCA

In general, companies may run into problems with inconsistent transactional data if they have large volumes of data, an abundance of custom codes, or do not reconcile their data during the year-end close process. Therefore, performing preparatory work for the migration of documents in the ACDOCA table is highly important in order to identify any data quality issues well in advance of an SAP S/4HANA conversion. This critical step will help to ensure a smooth and error-free data migration. Some important recommendations:

a. **Performing consistency checks across table indexes:** This is done by comparing documents to indexes, checking documents against transactional data for selected fiscal years, checking for any duplicate data and identifying missing document between headers (BKPF), and line items (BSEG). RFINDEX_NACC is the standard program that checks the consistency of the document views from the BSIS, BSAS, BSID, BSAD, BSIK, and BSAK tables with the line items in table BSEG. It also reconciles documents versus indexes, indexes versus documents, missing BKPF, missing BSEG, document/ transaction figures, indexes/transaction figures, duplicate indexes, etc. SAP Note 1835621 and SAP Note 1592904 can be used to deal with any findings in this program.

b. **Reconciling the G/L and the AP/AR subledgers:** The transaction FAGLF03 (Program TFC_COMPARE_VZ) reports the transaction-based difference between the G/L and AP/AR. It also checks customizing for document types and number ranges. Before starting with the migration, the reports should be executed for the last fiscal year with the "Single Doc. Comparison" check flagged. Any findings should be resolved before the start of the migration.

c. **Reconciling the G/L with asset accounting:** Programs RAABST02 and RAABST01 are standard programs that can be used to reconcile the FI and AA data. These programs reconcile the data for both the leading and non-leading ledgers (if any). However, before executing these reports, the following activities should be performed in the AA module to ensure that there are no errors:

   - Fiscal Year Change (AJRW)
   - Execute Depreciation (AFAB)
   - Execute Year Closing (AJAB)
   - APC Values Posting (ASKB)

Furthermore, since the classic AA module has been replaced with "New Asset Accounting" in SAP S/4HANA (Note: New Asset Accounting is also available in release SAP ECC 6.0, EHP8), it is a critical area that needs to be handled carefully in order to mitigate any risks that may arise due to data inconsistencies.

HOW WINSHUTTLE CAN HELP

Inevitably the checks and validation steps that SAP programs conduct will return errors that need to be corrected. Winshuttle software enables functional teams to extract the records that need adjusting from the SAP system, make the necessary corrections, and reload the records — all without the need to manage the changes through the SAP GUI. The changes can be made in a Winshuttle-enabled Microsoft Excel template and then posted to the SAP system.

Winshuttle offers software solutions that enable teams to adhere to strict, established audit and compliance standards — that are critical for successfully migrating financial data from SAP ECC to SAP S/4HANA.

d. **Reconciling the G/L with materials management.** Programs RM07MBST and RM07MMFI ensure that the summary total in the G/L matches the total in the MM subledgers. It is therefore important to run these programs for the current year as well as the prior years. Any errors and inconsistencies should be resolved immediately. For the most part, the differences can be resolved by carrying forward the balances in the G/L. Also, program FAGL_MM_RECON needs to be executed to compare the inventory G/L account balance with the inventory values in the material ledger. This program reads the inventory values from the material ledger tables. If the material ledger is not active, it reads the values from the MM tables. The SAP Notes below can be referred to if there are any errors:

- **SAP Note 968812 – MM/FI:** Difference for material stocks
- **SAP Note 520010 – FAQ:** Inconsistencies in inventory management

e. **Reconciling ledgers:** Transaction code GCAC is used for the reconciliation of different ledgers. If the new G/L is active, then all the records of the leading and non-leading ledgers should be compared for each fiscal year. If the program finds any differences, SAP Note 729433 (differences between the special ledger and the G/L for possible causes and solutions) can be referred to.

f. **Reconciling profit center accounting with the G/L:** Transaction codes KE5T and KE5U are used (the previously mentioned transaction GCAC can also be used) to reconcile the profit center accounting module with the G/L. The program compares the GLPCT table with the classic G/L table (GLT0). If there are any differences, the SAP Note 81374 can be referred to for possible causes and solutions.

g. **Customizing consistency checks:** From SAP S/4HANA release 1809, the program /SDF/RC_START_CHECK as well as the program FINS_MIG_PRECHECK_CUST_SETTNGS can be used to check the consistency of Ledger, Company Code, and Controlling Area settings to determine whether a migration to SAP S/4HANA Finance is feasible. The program checks whether the currency settings of the company codes and ledgers are consistent and compatible with the new table architecture.

Chapter Summary

Universal Journal (ACDOCA) represents a fundamental change in the way SAP S/4HANA organizes, stores, and manages financial data. As a result, it is critical that you understand the implications of these changes and how they will affect both your SAP environment as well as your functional finance team. The things to be aware of include:

- The combining of multiple tables into a single "universal" table that includes all of your financial and related information
- The changes to your financial data that are required for your migration to be successful
- The tools available for analyzing your current data structures in SAP ECC
- The tools available for making corrections, updates, and adjustments to the data in preparation for SAP S/4HANA

Chapter 5

Activating the material ledger

In SAP S/4HANA, the material ledger is mandatory. In the SAP ECC system, the inventory valuation tables xBEW(H) (tables EBEW, EBEWH, MBEW, MBEWH, OBEW, OBEWH, QBEW, and QBEWH) were used to store transactional and master data attributes. However, with SAP S/4HANA, even though these tables still exist, they are only used for storing MM data attributes. The transactional data fields, such as LBKUM, SALK3, SALKV, and VKSAL, are no longer updated in the inventory valuation tables mentioned above. Instead, they are stored in Table ACDOCA and other material ledger tables. This is why it is mandatory to activate the material ledger in SAP S/4HANA. The table below describes how the old tables differ from the new ones.

| OLD TABLE	NEW TABLE	EXPLANATION
MLHD, MLIT, MLPP, MLPPF, MLCR, MLCRF, CKMLPP, CKMLCR, MLCD, CKMLMV003, CKMLMV004, CKMLPPWIP etc.	MLDOC & MLDOC_EXTRACT	These tables will be populated from material ledger transactional data updates and settlement.
MLKEPH, CKMLKEPH, (CKMLPRKEKO)	MLDOCCCS & MLDOCCCS_EXTRACT	These tables will update the cost component split in actual costing.
CKMLMV011	MLRUNLIST	This table will contain the material and activity type status from a costing run.
MKPF, MSEG	MATDOC	This table will hold the header and item data of a material document.
MBEW, OBEW, QBEW, MBEWH, OBEWH, EBEWH	ACDOCCA	This table will contain the inventory valuation transactional data.

During the migration to SAP S/4HANA, there are configuration conversion steps that are needed to activate the material ledger automatically — even if the source system did not have material ledger active. While it is mandatory to activate the material ledger in SAP S/4HANA, customers are not obligated to activate actual costing (which is typically the most common functionality used with the material ledger, to date).

Along with the significant architecture-level changes, the activation of the material ledger has its benefits. The contents of most of the old material ledger tables (such as MLIT, MLPP, MLPPF, MLCR, MLCRF, MLCD, CKMI1, and BSIM) are stored in the ACDOCA table. The material ledger table (MLHD) data is stored in the accounting document header table (BKPF).

There are numerous functional benefits for companies using actual costing with the material ledger in SAP S/4HANA. For example, price changes during the period are now possible without using the Late Price Change (LTPC) functionality. With the new material ledger, there is no longer a distinction between single- and multi-level variances. Furthermore, material ledger's monthly closing process is significantly faster now, as process steps (single-level settlement, multi-level settlement, revaluation of consumption, and work-in-process (WIP) revaluation) are merged into one step called "Settlement."

Recommendations for Companies NOT Currently Using the Material Ledger

For companies that are not currently using the material ledger, there are no specific sets of activities that need to be taken before migration as part of the preparation for a SAP S/4HANA conversion, except for executing the standard step, "Preparations and Migration of Customizing for Material Ledger" shown below:
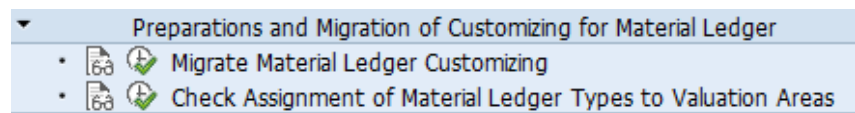
However, to ensure that the existing data is successfully transitioned to SAP S/4HANA — with minimal errors — it is recommended to take the following steps where pertinent:

- Archive purchase order (PO) history records (table MLWERE) and obsolete POs (MM_EKKO).

- Close open production orders (transaction COHV).

- Clear any goods-receipt/invoice-receipt (GR/IR) account differences (transaction MR11).

- Update the exchange rates for the currencies of the company code(s).

- Ensure that all G/L accounts configured as inventory accounts (transaction key BSX) have been created.

There are two main schools of thought regarding whether it is better to implement the material ledger before the migration process or during the migration process to SAP S/4HANA.

The first school of thought, that it is better to implement the material ledger beforehand, emphasizes several benefits, including:

- Users have time to become accustomed to the material ledger functionality and processes.

- The material ledger requires discipline for its functionality to work correctly. Implementing it beforehand allows the users to adopt these practices early on.

- SAP S/4HANA comes with a variety of new functionalities that will change the way the system is used. A migration beforehand reduces the overall learning curve when one of the features is already implemented.

HOW WINSHUTTLE CAN HELP

While Winshuttle software may not be best suited to help archive records from MLWERE or MM_EKKO, it is very well suited to support the closing, clearing, updating, and configuration activities in SAP ECC prior to activating the material ledger.

Some companies do not currently use the material ledger (in SAP ECC) but may consider activating it in SAP ECC, prior to migration, to use its actual costing functionality for business-related reasons such as:

- Operating in multiple countries and multiple currencies

- Operating a worldwide supply chain, which requires intercompany transfer pricing between different legal entities in different countries, thereby requiring the elimination of any intercompany profit within affiliated entities by having a "Group View" of inventory data

- Capturing exchange rate differences that relate to material valuation

- Capturing the inflationary impact on the inventory values due to high inflation rates, thereby necessitating the recording of inventory in a more stable currency like USD

Such companies may understand the need to implement the material Ledger, but have been holding back the implementation decision due to anticipated challenges, such as system performance, complex configurations, additional period-end activities, and operational discipline, etc. These companies can implement the material ledger in SAP ECC in order to familiarize themselves with the calculation logic and processes, and migrate to a significantly improved version in SAP S/4HANA, which offers the streamlined steps in the actual costing cockpit, the speed of the SAP HANA database, and the seamless integration with the Universal Journal (which eliminates period-end reconciliation).

The second school of thought is to delay the material ledger implementation until the SAP S/4HANA migration. In this case, if a company can wait until it migrates its existing SAP ECC system to SAP S/4HANA, it can reap the following benefits:

- The perceived challenges can be avoided because the month-end process is comparatively faster

- System performance is much faster than SAP ECC

- The aforementioned price change restriction has now been removed

Additionally, by waiting until the migration to SAP S/4HANA, there will be no confusion as to the process changes between the actual process in SAP ECC and SAP S/4HANA. The users will only need to learn the new process in SAP S/4HANA.

Another important benefit of delaying the material ledger implementation will be an overall smoother and faster migration process. The errors that can occur during the conversion of the material ledger from SAP ECC to SAP S/4HANA, including "SAP S/4HANA Material Ledger Migration (Actual Costing)" can be avoided. These include:

- Statistical exchange rate differences

- SAP S/4HANA Material Ledger Migration

- Exception CX_SY_ARITHMETIC_OVERFLOW

- Runtime Error: S/4HANA Migration Material Ledger Performance during INITIAL_LOAD

HOW WINSHUTTLE CAN HELP

When preparing for the implementation of the material ledger in SAP S/4HANA, Winshuttle Studio is an excellent tool for helping manage and prepare the data that will be migrated. Winshuttle Studio can help with cleansing, updating, and modifying data records so that the data is compatible with the material ledger fields in the Universal Journal.

Recommendations for Companies Using the Material Ledger in SAP ECC

For customers already using the material ledger in the SAP ECC system, there are a few proactive measures that need to be taken to ensure that the migration to SAP S/4HANA goes smoothly. As part of the pre-migration activities, customers should ensure:

- The material ledger costing runs for actual costing (CKMLCP) and alternative valuation (CKMLCPAVR) are successfully executed and that all the month-end processes are completed with no errors.

- There are no materials that are still in an "open" status as it is not possible to reprocess an existing actual costing run once the SAP S/4HANA migration is complete.

- Any custom programs that relate to the material ledger should be reviewed and remediated, as there are no compatibility views (i.e., table views in SAP S/4HANA that replicate the obsolete tables in SAP ECC) for material ledger tables in SAP S/4HANA. **Material ledger reports that are customized will no longer work** as they would be based on the old material ledger data structure.

- If a company has been using the material ledger for a long time and has large amounts of data, it is recommended to execute the Material Ledger Consistency Check report, (which is part of the Material Ledger Help Desk program) in order to find any inconsistencies in the material ledger tables. The transaction code for this report is FCMLHELP. Refer to the **SAP Note 2433733** for further details.

It is also recommended to minimize the amount of data that is to be migrated by archiving or deleting any data that is no longer needed. This will decrease the migration downtime. The relevant tables are as follows:

- Inventory valuation tables: MBEWH, EBEWH, QBEWH, and OBEWH

- Material ledger inventory tables: CKMLPP and CKMLCR

- PO history tables: EKBE, EKBEH, EKBZ, and EKBZH

- Production order history tables: MLAUFCR and MLAUFCRH

Using the Non-Zero Downtime Approach to Migrate from the Material Ledger in SAP ECC

For companies using the "Non-Zero Downtime" (NZDT) migration approach, the following measures should be taken in advance to avoid errors:

- The currency exchange rates should not be maintained between the initial and the delta (NZDT) migration. Otherwise, this could lead to an error in the migration step "M20: Check Material Ledger Master Data." **SAP Note 2661870** can be referred to, or implemented, in advance to avoid any issues.

- During the execution of the step "M10: Migrate Material Ledger Master Data," there could be an unusual balance on the G/L accounts, especially for entries in table ACDOCA. It is recommended to apply SAP Note 2718814 **SAP Note 2675774** to avoid the error.

Other important points for companies already using the material ledger to be aware of are:

- There is no default "0000" material ledger type anymore. Therefore, a separate configuration of the material ledger type (using transactions OMX2 and OMX3) is a mandatory requirement.

- It is mandatory to define the currency types that are relevant for the material ledger explicitly as the user can no longer default the currency types from FI or CO (as was the case in the SAP ECC system).

- Although the deactivation of the "Statistical Moving Average Price" is not mandatory in SAP S/4HANA, SAP recommends taking this step to achieve a significant increase of transactional data throughput for goods movements.

- It is not possible to create the costing run for the previous period after the system has been converted to SAP S/4HANA.

- It is not possible to change any material ledger costing runs or to execute the steps of material ledger costing runs during the process of system conversion.

- It is not possible to activate or deactivate the material ledger's actual costing functionality during the process of system conversion.

- It is mandatory to execute the program FCML4H_STARTUP after the migration to post documents on plants that had actual costing active (before the SAP S/4HANA migration).

Migrating the Material Ledger from SAP ECC to SAP S/4HANA

Material ledger migration is mandatory in SAP S/4HANA even if the material ledger functionality is not being used in the SAP ECC system. It activates the material ledger for all valuation areas, and the relevant master data is created in all material ledger currencies from the 12th period of the last fiscal year until the period of migration. If the actual costing functionality is active in the source system, data related to actual costing will be transferred to the new data structures in SAP S/4HANA for the following tables:

- ML Document Table MLDOC

- ML Document Cost Component Split Table MLDOCCCS

- Extract of ML Document Table MLDOC_EXTRACT

- Extract of ML Document Cost Component Split Table MLDOCCCS_EXTRACT

- Object List for Costing Run Table MLRUNLIST

If the material ledger is not active in the source system, it converts all existing PO history table records in tables EKBE, EKBEH, EKBZ, and EKBZH and all existing production order history table records in tables MLAUFCR and MLAUFCRH into the material ledger currencies. It also performs checks to ensure that all PO history and production order history records have been converted properly into the material ledger currencies.

Chapter Summary

Material ledger being mandatory in SAP S/4HANA has multiple implications for SAP and finance teams going through the migration process. For teams that have already implemented the material ledger in SAP ECC, the migration is relatively straight forward. However, for finance organizations that have not implemented it, there are several things to look out for and consider as you go through the planning and implementation phases of your SAP S/4HANA migration. These include:

- Analyzing your current SAP ECC finance implementation to determine what data-related activities you need to undertake before the migration, such as defining currency types

- Cleansing old data if you have had the material ledger active for a long time

- Understanding the effect on your migration schedule depending on whether you choose to implement the material ledger in SAP ECC, before migration, or wait and make it part of your migration.

Chapter 6

Controlling and preparing for the changes in profitability analysis

With SAP S/4HANA, SAP recommends the use of account-based CO-PA as this is the version of CO-PA that is integrated with the Universal Journal. In SAP ECC, most SAP customers utilize the costing-based CO-PA because it has more functionalities than account-based CO-PA. However, one of the main issues with costing-based CO-PA is that it is difficult to reconcile it to the G/L. In SAP S/4HANA, now that account-based CO-PA is integrated with the Universal Journal (and hence the G/L) reconciliation is no longer an issue. Also, the three main functionalities that were only available in costing-based CO-PA in SAP ECC have now been added to account-based CO-PA in SAP S/4HANA. These functionalities are as follows:

- Splitting the COGS account into multiple G/L accounts per cost component
- Splitting the production variance account into multiple G/L accounts per variance categories
- Enabling sales quantities in multiple units of measure

SAP has removed the major impediment in traditional account-based CO-PA. Also, the underlying SAP HANA platform and table-level restructuring provide the immediate benefit of speed as well as tremendous performance improvements.

Recommendations for Companies Using Costing-Based CO-PA

Companies that are currently using costing-based CO-PA will need to activate account-based CO-PA as part of the SAP S/4HANA conversion process. However, they can continue to use costing-based CO-PA in parallel. Note, however, that that there will be no further innovations in costing-based CO-PA.

To transition from costing-based to account-based CO-PA requires a detailed analysis of the current SAP design processes and transactions before moving to SAP S/4HANA. Following are some recommendations for preparing to move to account-based CO-PA in SAP S/4HANA:

a. **Statistical condition type:** Costing-based CO-PA facilitates the use of statistical condition types, which allow a user to post values, such as accruals (via sales condition types) into CO-PA without affecting the G/L. Before the release of SAP S/4HANA 1809 (which was released in September 2018), statistical condition types were not able to be posted to account-based CO-PA. However, with the 1809 version, this can be achieved

through the extension ledger functionality. Companies need to plan for these changes by extracting all the statistical condition types that are currently used and mapping them to the relevant G/L accounts (which will be posted to the extension ledger).

b. **General condition type:** As part of the transitioning process from costing-based to account-based CO-PA, companies will need to evaluate all of their SD condition types to determine which ones are mapped to a single G/L account but to multiple CO-PA value fields. In account-based CO-PA, additional G/L accounts need to be created to have a one-to-one match with the value fields that are reported in costing-based CO-PA.

c. **CO-PA user exit (i.e., custom program) COPA0005:** If customers use CO-PA user exit COPA0005 (FM: EXIT_SAPLKEII_001) to calculate the quantity in an alternative unit of measure, this will no longer be possible in SAP S/4HANA as account-based CO-PA does not support it. Instead, the way to define additional units of measure will be done by going through the standard configuration menu path called "Define Additional Quantity Fields."

d. **CO-PA user exit COPA0002:** If customers use a valuation strategy with a user exit COPA0002 to post additional values in costing-based CO-PA that do not impact the G/L, they will need to use an alternative solution. For example, a customer can do an analysis based on actual values or use an SD pricing procedure to perform a user exit-related calculation and then post the entries to the G/L.

e. **Valuation using costing sheets:** If customers use the CO-PA costing sheet functionality to calculate specific values (e.g., freight/handling charges as a percentage of the standard cost estimate) during a billing document posting and update the results in costing-based CO-PA, they will need to use an alternative option or change the business process.

f. **Assessment cycle:** Account-based CO-PA and costing-based CO-PA can use the same assessment cycles for allocating costs from cost centers to CO-PA. However, when account-based CO-PA is activated, the company will need to plan and evaluate all the assessment cycles that currently exist to ensure that a single assessment cost element is not utilized in the assessment cycle. Since account-based CO-PA is based on cost elements and not value fields, using a single assessment cost element will lose the granularity of allocated costs that are present in costing-based CO-PA. The company will need to make sure that the assessment cost elements represent the separate value fields that existed in costing-based CO-PA.

g. **Top-down distribution:** Companies that use the top-down distribution (TDD) functionality in costing-based CO-PA will need to recreate the TDD templates using the same transaction code (KE28) but instead choose the option for account-based CO-PA.

h. **CO-PA adjustments:** Costing-based CO-PA allows direct postings to CO-PA either for data correction purposes or further allocation of data by using transaction code KE21N. This transaction, however, does not post to the G/L. In the same light, reversing (transaction KE4S00) or reposting (transactions KE4S, KE4SMM, and KE4SFI) a costing-

based CO-PA document was possible without reversing the original G/L documents. Companies will need to plan in advance and make the changes in business processes as these features are not available in account-based CO-PA. Account-based CO-PA needs to be directly aligned with the G/L.

i. **Historical data:** An SAP S/4HANA conversion does not migrate the historical information in costing-based CO-PA to account-based CO-PA. Therefore, companies need to evaluate if the historical data from costing-based CO-PA is required for future references or analysis and determine the number of years of historical data needed in account-based CO-PA in SAP S/4HANA. We recommend you undertake the migration of CO-PA data as a separate project to smoothly transition to SAP S/4HANA. You should also consider defining a separate document type to segregate the CO-PA migration postings from other postings for easy identification and analysis or troubleshooting if required.

j. **Update of profitability segment in sales orders:** In most organizations with account-based CO-PA, the profitability segment is determined at the time a sales order is created. If the functionality to transfer a sales order to costing-based CO-PA is not active, then we advise you execute transaction code KE4F to update sales orders with the profitability segment.

HOW WINSHUTTLE CAN HELP

In preparation to move to account-based COPA, there are many areas (mentioned above) where Winshuttle software can help. Specifically, Winshuttle Studio can be used to:

- Updating general condition types to account for all of the value fields

- Recreating the TDD templates for account-based COPA using the KE28 transaction code

- Changing the business process for using COPA adjustments and reposting via KE4XX transactions

- Segregating COPA migration postings

Recommendations for Companies Already Using Account-Based CO-PA

Companies that already use account-based CO-PA are not required to modify any user exits or SD-based conditions. However, you should perform a Delta upload to SAP BW for all account-based CO-PA data sources for which the Delta method is being used.

The key activities that need to be performed as part of the controlling migration to an SAP S/4HANA system are shown and explained below:
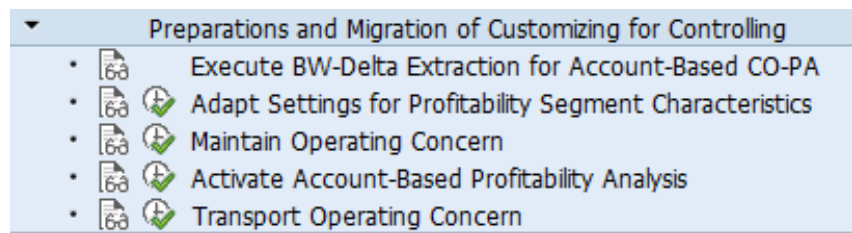
a. **Execute the SAP BW Delta extraction for account-based profitability analysis:** If a company uses account-based CO-PA and SAP BW, this step is required because account-based CO-PA line items that are not extracted before the migration may be ignored after the migration when the next Delta posting is loaded.

b. **Adapt settings for profitability segment characteristics:** In this activity, the settings for profitability segment characteristics (segment level) are deleted, as profitability segments already contain all the available characteristics in SAP S/4HANA. A summarization of the operating concern characteristics is no longer possible or required.

c. **Maintain operating concern:** In this activity, the operating concern is activated for account-based CO-PA if the company is not already using this feature.

d. **Activate account-based profitability analysis:** If a company uses costing-based CO-PA, then account-based CO-PA should be activated as well. The company can then either continue to use both options or deactivate costing-based CO-PA and only use account-based CO-PA in the future. Only account-based CO-PA entries will be updated in the Universal Journal.

e. **Transport operating concern:** Transaction KE3I is used to transport the definition of the operating concerns.

Chapter Summary

For many companies, the shift from cost-based COPA to account-based COPA represents a fundamental change in the way they calculate and account for profitability. As you prepare for the migration from SAP ECC to SAP S/4HANA, it is essential to take a number of factors into consideration, including:

- Changes in data structures required for account-based COPA such as the statistical condition type and general condition type

- Updates to the top-down distribution functionality to account-based COPA

- Migration of historical data (if required)

- Updating the profitability segment in sales orders using transaction code KE4F (when applicable)

Chapter 7

Customization, preparation, and migration of asset accounting

New Asset Accounting is not really "new" as it was introduced by SAP in 2013 on SAP ECC 6 EHP 7. It includes several new additions to the asset accounting functionality such as:

- Recording the leading valuation of asset accounting in any depreciation area of new asset accounting, therefore, no longer needing to use depreciation area 01 for this

- Posting both the actual values of the leading valuation and the values of parallel valuation in real time and thereby no longer needing Delta depreciation areas

- Simplifying the chart of depreciation

- Having different fiscal year variants for each valuation (as long as the start date and end date of the fiscal year variant are the same)

For companies that have the new G/L in SAP ERP, New Asset Accounting can be implemented by activating the business function FIN_AA_PARALLEL_VAL. However, this functionality is optional in SAP ERP. In SAP S/4HANA, New Asset Accounting is mandatory for customers that use the Asset Accounting module.

An SAP S/4HANA migration includes performing pre-checks for using New Asset Accounting. It does this by carrying out the following activities: checking Accounting Principle and Ledger Group settings; assigning the accounting principle to the ledger group, making any additional manual changes in the Customizing for New Asset Accounting setting, and checking the prerequisites for activating New Asset Accounting. The configuration path is shown in the menu below:
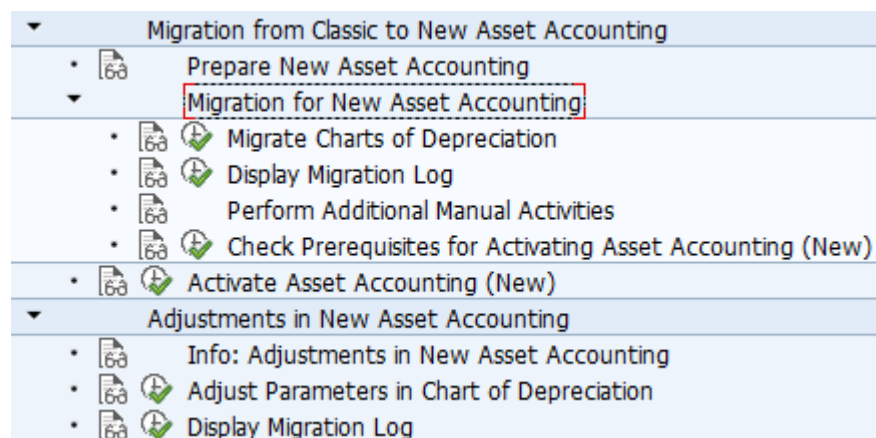
Migrating to New Asset Accounting

The different steps for migrating to New Asset Accounting are as follows:

a. Migrate the charts of depreciation: A company that uses the classic Asset Accounting module will need to migrate to the New Asset Accounting module. The first activity for migrating to New Asset Accounting is the migration of the charts of depreciation (COD). The COD can either be migrated automatically using the migration program FAA_CHECK_ MIG2SFIN or manually, in the following cases:

- Where the COD cannot be migrated during the automatic migration because the migration program does not recognize the starting situation defined in the system.
- When the COD is assigned to a deactivated company code, and because the deactivated company code's data has not yet been archived. In this case, the company code must be migrated with the document migration.

b. Customize prior to activating New Asset Accounting: After the migration of the COD, and before executing the prerequisite checks for the activation of New Asset Accounting, a few customization steps are required:

- Define the depreciation area for a quantity update.
- Define the technical clearing account for integrated asset acquisition.
- Specify an alternative document type for accounting principle-specific documents.

- Specify revenue distribution for asset retirements.
- Post net book value instead of gain/loss.
- Check transaction types to make sure they are not restricted for some depreciation areas.
- Change definitions of depreciation areas.
- Specify transfer of acquisition and production cost values.
- Specify transfer of depreciation terms.

c. Check prerequisites for activating New Asset Accounting: After migrating the COD, assigning the relevant company codes and adding any manual customizing settings, the prerequisites for activating New Asset Accounting can be made. Transaction FAA_CHECK_ACTIVATION is used to check if all prerequisites are met for activating the business function PARALLEL_VAL and if all periodic postings have been successfully completed.

d. Activate New Asset Accounting: This customizing step changes the New Asset Accounting setup from the "in preparation" stage to the "active" stage. However, to avoid any errors, it is advisable to check if all the active CODs have been migrated and assigned to the company code.

e. Adjust parameters in the COD: This configuration step adjusts the parameters for the COD with the following adjustment:

- Assign the accounting principle.
- Change the posting indicator for the depreciation areas.

Chapter Summary

The changes to the AA module in SAP S/4HANA are significant, but the migration is relatively straightforward. When preparing for this step, you may want to keep in mind the following:

- Identify the best option for your organization regarding migrating the COD.

- Be aware of the customizations that need to be made before activating New Asset Accounting.

Chapter 8

Data Migration Preparation and Process

As was discussed in previous chapters, data migration involves the movement of transactional as well as master data to the new tables in SAP S/4HANA. Transactional data is transformed into the new data model of the Universal Journal, while some types of master data undergo structural changes — such as secondary cost element data being merged to the G/L account master data — customer and vendor master data are converted into business partners, and house bank accounts are migrated to the "new" bank account master data.

It is crucial that the financial data migration receives proper attention during the planning phase of an SAP S/4HANA conversion. Below is a list of the preparation activities that should be undertaken for the data migration:

a. **Complete period-end closing activities:** The penultimate period should be closed as normal, and the results should be documented. The list of activities to be performed at period-end closing are:

- Close periodic asset postings using the program RAPERB2000.
- Execute the periodic depreciation posting run using the program RAPOST2000.
- Close the current and previous periods in the MM module (optional).
- Carry out the Foreign Currency Valuation transaction.

b. **Complete year-end closing:** The prior fiscal year's closing should be completed in the SAP ECC system before the conversion begins. Below are the activities to be performed for the year-end closing:

- In the AA module, close the previous fiscal year, and keep the current fiscal year open using the program RAJABS00.
- Carry forward the balances to the current fiscal year as follows:
    - o Use transaction FAGLGVTR (if the new G/L accounting is used).
    - o Use transaction AJRW (for AA).
    - o Use transaction F.07 (for AP and AR).

c. **Perform cutover preparation tasks:** Cutover preparation includes the following activities:

- Execute all scheduled jobs, and do not schedule any new jobs.
- Lock the periods for financial accounting (program SAPL0F00) and controlling (program SAPMKCSP).
- Post or delete all "Held" documents. To delete "Held" documents, use program RFTMPBLD, and use transaction code FB50 to post any "Held" documents.

- Lock all users in the system who do not have any tasks associated with the installation or the migration.
- Execute the program RASFIN_MIGR_PRECHECK to make sure that the prerequisites for AA have been met.
- Execute the program /SDF/RC_START_CHECK.

d. Exclude data from the migration: Companies should aim to minimize data as much as possible by archiving old or unwanted data. If any company code is obsolete, it can also be archived or marked as a "template" company code to avoid the pre-check activities.

e. Document the data posted: To verify the posted data and reconcile the reports before and after the migration, it is important to document all of the reports highlighted below. Also, create a program variant while preparing the reports during the pre-migration phase in order to have the exact selection parameters when executing the report after the migration (for reconciliation purposes). Aside from the standard reports provided by SAP, a company should also download any customer-specific reports that are used during the period-end closing:

- The Financial Statements (program RFBILA00)

- The Totals Report for Cost Centers (transaction S_ALR_87013611)

- The "Order: Actual/Plan/Variance" Report (transaction S_ALR_87012993)

- The G/L Account Balance List (program RFSSLD00)

- The General Ledger Line Items List (program RFSOPO00)

- The Compact Document Journal (program RFBELJ00)

- The Asset History Sheet (program RAGITT_ALV01)

- The Depreciation Run for Planned Depreciation (RAHAFA_ALV01)

- The Vendor Sales Report (program RFKUML00)

- The Vendor Open Items List (program RFKEPL00)

- The Customer Sales Report (program RFDUML00)

- The Customer Open Items List (program RFDEPL00)

- The Customer Recurring Entry Original Documents (program RFDAUB00)

f. Run the CVI tool: The "Business Partner" will be used to centrally manage the master data for business partners, customers, and vendors. It is the single point of entry to create, edit, and display these master data items.

- The CVI tool is used to synchronize "synchronization objects" in the SAP ECC system. The synchronization objects are Business Partner, Customer, and Vendor.

- While the CVI tool manages the conversion process, it is important to complete data cleanup and error correction prior to launching. Winshuttle can help with this.

g. Carry out the asset accounting preparedness check: The prerequisite check for using New Asset Accounting in SAP S/4HANA is carried out with the report "RASFIN_MIGR_ PRECHECK." Refer to SAP Note 1939592 and SAP Note 2333236. The following checks are performed:

- The new G/L is active (this is only a warning, as it is not a requirement).
- Lease Accounting Engine (LAE) is not active.
- Classic Real Estate (Classic RE) is not active.
- No requests (with reference to assets) are used in the "Public Sector Management – Fund Management" (PSM-FM module).
- All periodic postings are posted successfully (no "Update Terminations" exist).
- All relevant depreciation areas for parallel currencies exist.

h. Check the consistency of G/L accounts and cost elements: A consistency check is performed by executing the program FINS_MIG_PRECHECK_CUST_SETTNGS (using transaction SA38). Any inconsistencies should be resolved so that the G/L account master records will have the correct account types after the migration.

Preparation for the Conversion

The preparation phase of the conversion verifies the readiness of the current SAP ECC system for an upgrade to S/4HANA. Figure 10 shows the overview of the technical process steps for an SAP S/4HANA system conversion. To help prepare the system for the conversion, SAP provides a number of helpful programs that perform automated checks on the system, such as SAP Maintenance Planner and the Simplification Item Catalog. This section will detail these system checks.

SAP S/4HANA system conversion

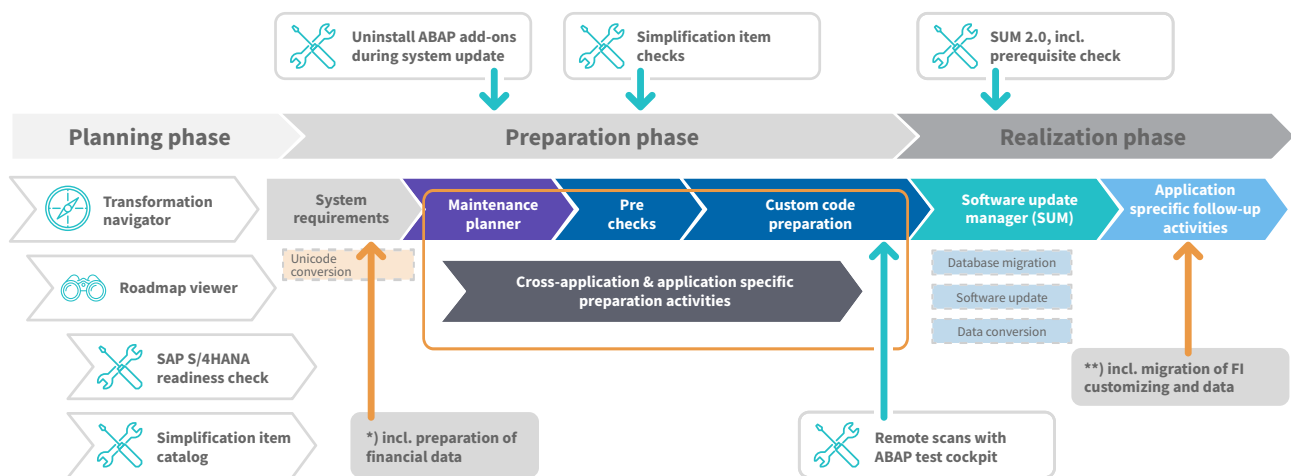Overview of technical process steps

Figure 10: Technical process steps for an SAP S/4HANA system conversion (Source: SAP)

SAP Maintenance Planner in an SAP S/4HANA conversion checks whether it is possible to carry out a system conversion to SAP S/4HANA. The validation that the program performs checks the source system for the supported business functions and add-ons to ensure they are compatible with SAP S/4HANA. Specifically, it carries out the following activities:
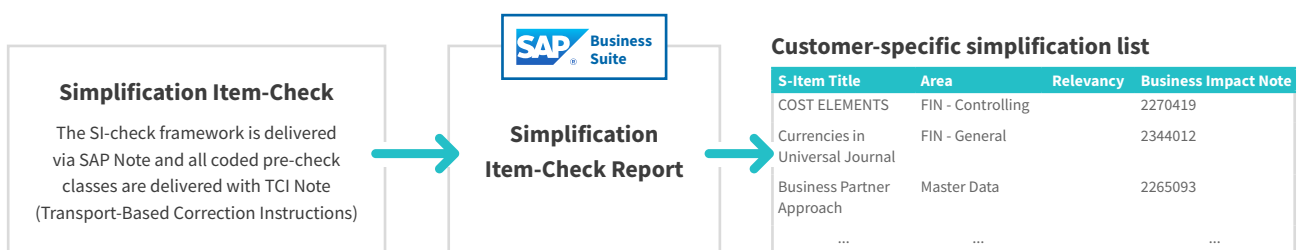
- If the SAP ERP solution cannot be converted, then SAP Maintenance Planner provides the information explaining why the system cannot be converted. In these cases SAP recommends performing a greenfield implementation of SAP S/4HANA.

- If the SAP ERP solution can be converted, then SAP Maintenance Planner generates the stack file, which is needed by the Software Update Manager 2.0 (SUM) tool to carry out the actual system conversion.

- The downloaded stack XML file needs to be copied to the software download directory so that the SUM process can read it. Other solutions, such as a front-end server or Java adapter, can be planned using SAP Maintenance Planner.

The series of checks is based on:

- Add-ons (SAP and non-SAP) in the current source system as well as whether they will be supported in SAP S/4HANA

- Active business functions in the current source system and whether they are supported in SAP S/4HANA

- Industry business functions active in the current source system and whether they are supported in SAP S/4HANA

The Maintenance Planner also pre-checks any add-ons that are not supported and provides options to uninstall or retrofit them to the target system, if possible. If the unsupported add-ons cannot be uninstalled, the client cannot continue with the conversion planning process.

Simplification Item Catalog is the central place where SAP maintains a complete (and searchable) collection of simplification items online. Before converting the existing SAP ECC system to SAP S/4HANA, it is necessary to identify all the "simplifications" that apply to the source SAP system and to analyze their impact. The checks are implemented on the source release, but the relevancy is determined by the desired target release. At higher levels, it checks whether the customizing settings can be automatically migrated to the new SAP S/4HANA customizing tables. From release 1809 onward, the checks that are done with the program RASFIN_MIGR_PRECHECK are included in the Simplification Item (SI) check framework (see Figure 11).

Simplification Item-Check

The SI-check framework is delivered via SAP Note and all coded pre-check classes are delivered with TCI Note (Transport-Based Correction Instructions)

SAP Business Suite

Simplification Item-Check Report

Customer-specific simplification list

S-Item Title	Area	Relevancy	Business Impact Note
COST ELEMENTS	FIN - Controlling		2270419
Currencies in Universal Journal	FIN - General		2344012
Business Partner Approach	Master Data		2265093
...	...		...

Figure 11: The Simplification Item check framework (Source: SAP)

There are two types of checks performed by this program:

- **A relevance check** determines whether an item is relevant to the system or not. The relevance is based on rules maintained in the Simplification Item Catalog. If no rule is maintained, or the rule cannot be used, then the item will be marked as "Probably Relevant."

- **A consistency check** determines whether the system is in a consistent state and, if not, what the client needs to do before the conversion to bring the system to a consistent state. Only the items that are relevant to the system will be included in a consistency check. All remaining inconsistencies need to be solved before SUM enters the downtime phase.

The SI checks technically consists of three parts:

1. The check framework (delivered via **SAP Note 2399707**)

2. Application-specific check classes (delivered via **SAP Note 2502552** and other sets of notes that are prerequisites for SAP Note 2502552)

3. The check content from the Simplification Item Catalog. The check framework will download the content automatically from the SAP servers.

The SI checks are executed with the report "/SDF/RC_START_CHECK." From release 1709, this has replaced report "R_S/4HANA_PRE_TRANSITION_CHECKS". By default, this report downloads the most recent Simplification Item Catalog content from the SAP servers. To implement the SI checks, refer to **SAP Note 2399707** and **SAP Note 2502552.**

The output of the SI checks is a list of relevant (and irrelevant) simplification items. Each simplification item describes changed or removed SAP objects and refers to a dedicated SAP Note that describes the impact of the change. Some simplification items have a consistency check. The consistency check identifies inconsistencies in the system that would cause issues during the SUM process (which is used during the data migration). It also provides additional information on how to fix the issue. Some of the simplification items do not have a consistency check but are still relevant. From a technical perspective, a conversion will still be possible without any action taken. However, there could still be an impact on the overall migration, and therefore these should be investigated.

To minimize the number of SAP Notes that customers have to implement for the SI checks, the individual application-specific check classes are not delivered as individual SAP Notes. Instead, they are delivered as a new type of SAP Note/Correction called **"Transport-Based Correction Instruction" (TCI).** This is a new channel that contains ABAP programming corrections with SAP Notes. TCI enablement needs to be done in every system before a TCI can be implemented. This also applies to systems where the TCI gets implemented via a transport request.

Please refer to **SAP Note 2187425** for TCI implementation. When implementing a TCI, the Support Package Manager (SPAM) will create a backup transport of the objects within the TCI. This requires that the SAP Transport Management System (STMS) is properly set up

in the system, thereby making the creation and release of workbench requests possible. Therefore, it is necessary to ensure that a proper STMS setup is done before implementing TCI; otherwise, the TCI implementation will fail.

Custom Code Migration checks are based on the SI concept. With SAP S/4HANA, business processes have been changed and simplified and, in some cases, they have been changed in a non-compatible way. Before converting to SAP S/4HANA 1809, it is required to check the custom code against the SAP S/4HANA simplifications in an SAP S/4HANA 1809 system. In the context of this system conversion, any custom ABAP programming code will need to be adapted (see Figure 12).

SAP S/4HANA system conversion

Custom code related process
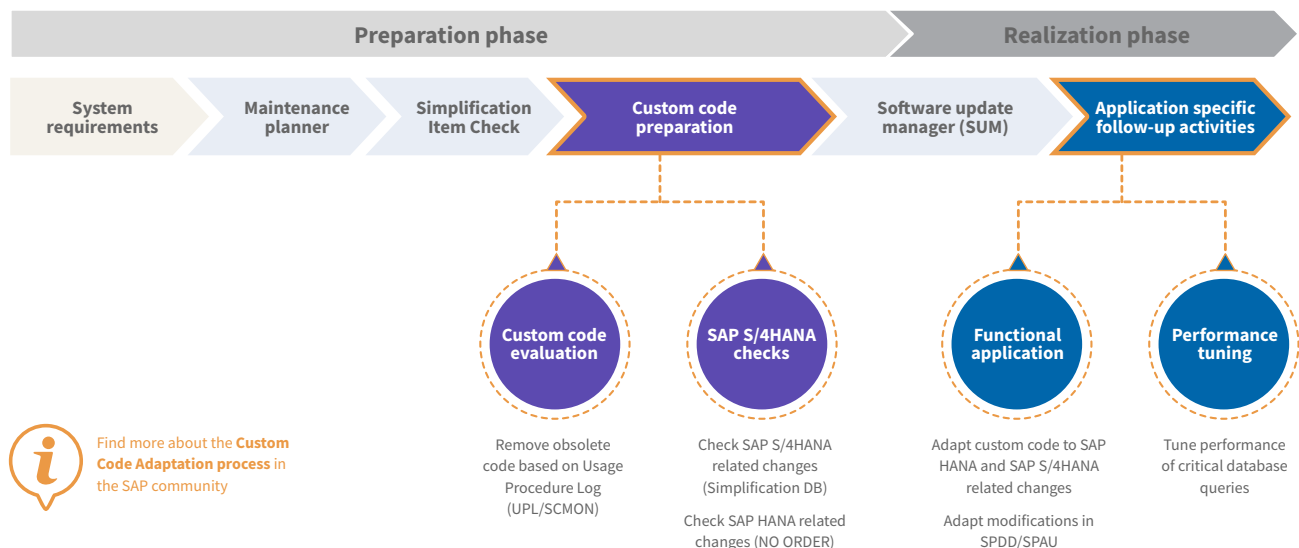
Figure 12: Custom Code Migration checks will check custom code against the SAP S/4HANA simplifications (Source: SAP)

The SAP ECC system will (over time) tend to accumulate vast amounts of custom development objects (Z-Objects, enhancements, and modifications), some of which are in use, and others of which are obsolete. You should also eliminate any unused/obsolete objects as part of the housekeeping activities. The ABAP Call Monitor (SCMON) or Usage Procedure Log (UPL) can be used to detect any custom ABAP objects that are used within the regular running of business processes. During the preparation phase, the ABAP team needs to highlight any unused custom code and analyze the custom ABAP code with the simplification database. Also, the specific functional team should find out which objects need to be changed and adapted to SAP S/4HANA.

The technical infrastructure for the custom code analysis are as follows:

- Custom code analysis with ABAP Test Cockpit (ATC)

- Functional adaptation in ABAP Development Tools (ADT) in Eclipse

- Custom Code Migration app

- Automatic code adaptations (quick fixes)

Preparation for the Migration of Customizing Tasks

Preparation for the migration of customizing tasks includes the execution of a standard series of activities in sequential order, as follows:

1. Run transaction FINSC_CO_CD_TEMPLATE to turn off the checks on the template codes.

2. Check customizing settings prior to the migration (as shown below)

The key customizing steps below that need to be performed to migrate to the new G/L are part of the overall SAP S/4HANA migration:

a. **Check and adopt fiscal year variants:** The migration to the ACDOCA table requires the same fiscal year variant to be used in both the FI and CO modules. This activity compares the fiscal year variants between controlling areas and their assigned company codes. The report lists all the CO areas and company codes that need to be changed, as well as the number of the posting periods and special periods.

b. **Establish currency settings for the migration:** In this activity, the currency settings are established so that the ACDOCA table captures "Amount" information for all currency types, including the ones that were only available in the CO module before the migration to SAP S/4HANA. In SAP S/4HANA, unlike in SAP ECC, statistical postings in the CO module require postings in the local currency as well. Therefore, it is mandatory to define an exchange rate type for CO-related transactions that can be migrated along

with a local currency amount, using the exchange rate type and the posting date. If the exchange rate type setting is not defined, then the affected transactions are migrated with an amount of zero.

c. **Migrate G/L customizations:** In this activity, all of the ledgers are migrated to the new configuration, using transaction FINS_MIG_LEDGER_CUST. The settings that are migrated are Company Code Assignments, Currency Settings, Fiscal Year Variant, Open Period Variant, and the settings for real-time integration of CO and FI.

d. **Define settings for ledger types:** In this activity, Standard Ledger and Extension Ledger settings are defined. During the conversion, it is not recommended to add or use a new standard ledger. However, the extension ledger can be created depending on the company's needs. It is advisable to create two extension ledgers: one for consolidation-related modifications, and another for any future needs. The extension ledger takes the base values from the standard edger and combines the specific extension ledger postings. This helps to reduce multiple data footprints and significantly reduces data redundancies because the journal entries do not need to be posted to both the extension and the standard ledger. Any adjustments will need to be posted only to the extension ledger.

e. **Define settings for currency types:** In this activity, currency types and currency conversion settings that are used in accounting are maintained along with the corresponding ledger settings, as well as the assignment of accounting principles for ledgers and company codes.

f. **Review the assignment of ledger and company codes to accounting principles:** In this activity, an evaluation is carried out of the accounting principles assigned to the combination of ledgers and company codes.

g. **Define a ledger for controlling version:** In this activity, a ledger is defined in which all actual data that is relevant to the CO module is posted to, by assigning "Version 0" to the relevant ledger. The version is assigned at the company code level, and the same ledger will need to be used for all company codes.

h. **Define document type for controlling:** In this activity, new document types for CO-related postings are defined. For document types used in the CO module, the "G/L Account" indicator under the "Account Types Allowed" section must be selected.

i. **Define document type mapping for controlling business transaction:** In this activity, a variant for mapping CO business transactions to document types is defined.

j. **Check and default value for posting in controlling:** In this activity, default values for posting CO-related business transactions are defined in cases where the user cannot enter the document type manually. If a default ledger group is not specified in this customizing activity, all CO-related transactions are posted to all the ledgers simultaneously.

k. **Define offsetting account determination type:** In this activity, the "Offsetting Account Determination" setting for all applications is defined. SAP recommends that the option "As Case 2, but Including Line Items Generated Automatically " is selected, as it always displays the offsetting account with the highest amount, along with the line items that are generated automatically.

l. **Define source ledger for migration of balance:** In this activity, the source ledger and the source database table of the G/L account balances (from which opening balances are transferred) is defined. If a company previously used the classic G/L and subsequently migrated to new G/L, then a minimum of two line items will need to be defined. One of the line items is for the year from which the classic G/L "00" was the source, and the second line item is for the year from which the new G/L "0L" was the source.

m. **Check and define settings for substitution of cost of sales accounting:** This configuration is only relevant when functional areas are being used for cost of sales accounting. In such cases, substitution rules will need to be defined.

n. **Check and define settings for controlling area:** In this activity, the existing controlling area settings are validated.

o. **Execute consistency check of G/L settings:** The program FINS_MIG_PRECHECK_ CUST_SETTINGS is executed again to reconfirm all the configuration necessary for an SAP S/4HANA migration.

HOW WINSHUTTLE CAN HELP

Throughout every step and check in the conversion process, it is possible that errors will occur. At any point in the process, Winshuttle software can help make these corrections to anything ranging from individual records to entire tables that need to be edited or modified. In addition, companies can use our software to provide a flexible customization layer in SAP S/4HANA, meaning you don't need to recreate customizations you were using in your old SAP ECC system

Start and Monitor Data Migration

The main activity of the SAP S/4HANA Finance migration is the "Start and Monitor Data Migration" step. This is an activity that is carried out after installing SAP S/4HANA. The steps for the individual activities are combined in data migration runs. The steps included in the data migration are included in Figure 13 . This section will detail some of the main steps and what they entail.
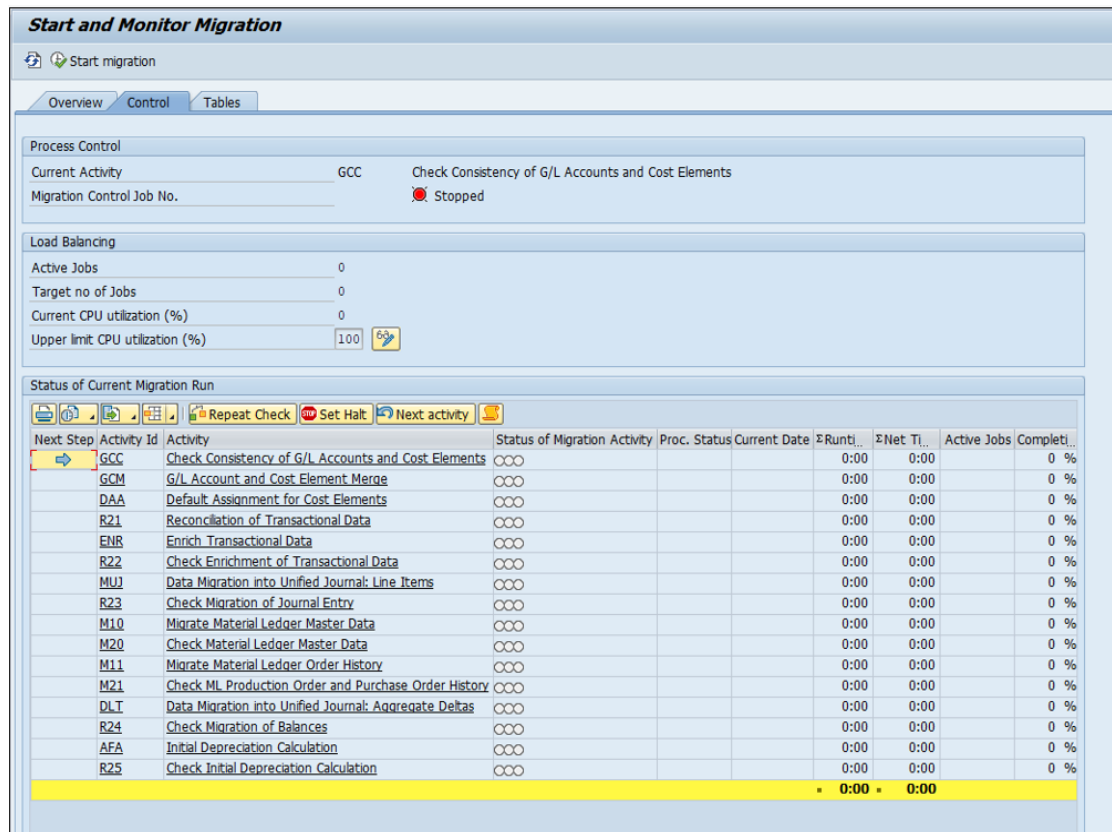
Figure 13: The steps of the main activity of an SAP S/4HANA Finance migration

Enrich Transactional Data

This step enriches transaction data and documents with the necessary fields and migrates them to SAP S/4HANA. The main activities performed here are:

1. Fill table BSEG fields from table BKPF.
2. Fill table COEP fields from the COBK and OBJNR tables.
3. Fill profit center fields into CO line items.
4. Fill company code data into old CO line items.
5. Fill company code data into old CO totals.
6. Fill table BSEG_ADD fields from table FAGLBSIS/AS.
7. Fill the COSP_BAK-BUKRS and COSS_BAK-BUKRS tables.

It's important to execute this step before moving to the subsequent steps (of migrating line items and balances) to ensure that all the fields that are used in the next migration steps exist in ACDOCA for error-free data population, hence verifying the migrated documents. The following documents are checked for inconsistencies related to FI, CO, and any specific ledger-related postings:

- G/L document: Crosscheck fields replicated from the BKPF and BSEG tables.
- Application index for ledger-specific clearing: Fields are replicated from application indexes to table BSEG_ADD.
- CO document and balances: All fields derived from the object number (table OBJNR) are correctly filled; crosscheck fields that are replicated from the COBK and COEP tables.
- Derived fields: For example, the PRCTR and BUKRS fields which are derived from other fields such as Material and Plant.

Following are the steps that are executed as part of the Technical Check of the Transaction Data section:

- Enrich Transactional Data
- Display Status of "Enrichment of Transactional Data"
- Check of the Migrated Document
- Display Status of "Check of Migrated Documents"

Data Migration Into Unified Journal: Line Items

This step migrates documents and line items from tables BSEG, FAGLFLEXA, and COEP to the new data structure – ACDOCA. It populates the Universal Journal entries by combining the transactional data of the modules FI, G/L, CO, and FI-AA along with the characteristics of account-based CO-PA that are assigned to a profitability segment. It also executes a reconciliation step after the migration of line items of the different applications into table ACDOCA. For the new G/L, CO, and AA line items, the compatibility view, which reproduces the original line-item table, is compared to the original values. For table BSEG, no compatibility view exists, and the check is executed directly. This is a very important step as the future balances will be calculated from the line items.

The steps executed as part of the Technical Check of the Transaction Data section are:

- Migrate Accounting Documents to Universal Journal Entry Structure
- Display Status of "Document Migration to Universal Journal Entry"
- Check Migration of Accounting Documents to Universal Journal Entry
- Display Status of "Check of Accounting Document Migration"
- Migrate General Ledger Allocations

Data Migration Into Unified Journal: Balances

After migrating line items, balances are migrated. All of the delta G/L totals and line-item balances, and the delta CO totals and line-item balances are migrated to table ACDOCA. The entries are made with a special document number starting with a letter and do not show

up in line-item reports. This step also includes a reconciliation check after the balances for applications such as G/L, CO, FI-AA, and the material ledger to ensure they have been successfully migrated into table ACDOCA and other related tables. For every former table containing aggregated information, there is a compatibility view that reproduces it. The program carries out some additional checks and reconciles the balances and values for all fields. The steps included are as follows:

- Check Migration of Balance
- Calculation of Depreciation and Total Value
- Calculate Initial Depreciation Value
- Check Initial Depreciation and Total Value

Initial Depreciation Calculation

Once New Asset Accounting is activated, and the G/L and AA transactional data have been migrated, the calculation of the initial depreciation value is executed to build the planned depreciation values for assets. This step also reconciles the total value with the depreciation value and includes the following activities:

- Calculate Initial Depreciation Values
- Display Status of "Calculate Initial Depreciation Values"
- Check Initial Depreciation and Total Values
- Display Status of "Check Initial Depreciation and Total Values"

Chapter Summary

The migration of financial data in SAP S/4HANA involves a sequence of steps and status updates of data that is to be migrated into the Universal Journal (table ACDOCA). These steps include the following:

- Migrating cost elements

- Performing technical checks of transactional data

- Migrating the material ledger

- Enriching data

- Migrating line items

- Migrating balances

- Calculating depreciation and total values

At each step, errors could occur, which requires investigation and correction. It is important to ensure that all steps are completed successfully before completing the migration.

Chapter 9

Challenges and Opportunities for Improving Data Migration Processes

One of the main challenges to a clean data migration process is the risk of data loss. As a result, there needs to be meticulous reconciliation during each step of the migration. During the transfer of data from SAP ECC to SAP S/4HANA, a risk exists that the data available in the SAP ECC system may not be available in the target system after the migration, or that the data migrated is incomplete and missing specific fields. Although SAP has built reconciliation steps into each of the migration processes to help ensure data is mirrored in the old table and new data structures, there, unfortunately, remain some gaps in the process. For example, during the "Transactional Data Check" step, AA and material ledger-related checks do not exist in the "Analyze Transaction Data" step (FINS_RECON_RC0).
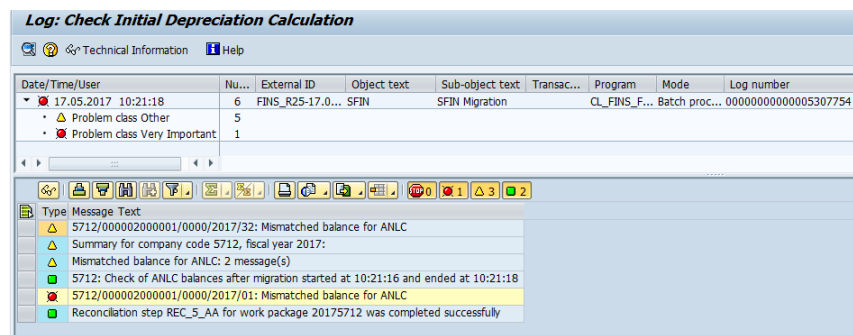

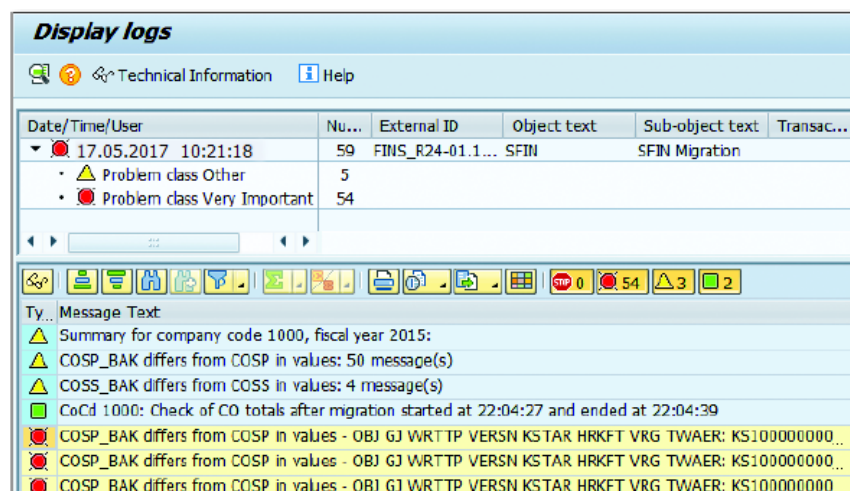**Figure 14 shows errors that could occur in the migration process.**

Figure 14: Examples of errors that could occur in a migration to SAP S/4HANA Finance

Opportunity: Reconciliation

Apart from the SAP Standard Reconciliation program, there should be a multi-faceted reconciliation in place, such as:

- **Count reconciliation:** Comparing the total number of records between the SAP ECC and ACDOCA tables to get a fair assessment of the number of records lost during the migration
- **Key column figure reconciliation:** Summation of key figure columns (such as total amount in doc currency, company code currency, and closing balance, for example)
- **Primary index-based reconciliation:** Reconciling the Universal Journal data based on primary index fields.

Aside from the standard consistency checks, SAP recommends the following checks:

- The "WAERS" field of the document header is filled.
- Line items exist for each header (depending on the document type) and vice versa.
- Every document has a zero balance.
- New G/L line items exist in table FAGLFLEXA for table BSEG and vice versa.
- The most important fields (BUKRS, BELNR, GJAHR, BUZEI, BUDAT, BLDAT, DMBTR,
- SAKNR, HKONT, LIFNR, and KUNNR) are equal for AP, AR, and the G/L.
- A checkbox stating whether the corresponding document of an application index entry is already archived (XARCH) is set correctly.
- Aggregates and line items are reconciled.
- Asset Accounting is reconciled in separate reports.

Semantic data challenge: Companies dealing with multiple currencies often tend to report differences in summation of other currency totals. There can be multiple reasons for this, including previous manual changes in configuration in the source system, or amounts getting populated in incorrect units of currency types during the migration. Occasionally, the decimal places also lead to differences in total amounts between the source and the SAP S/4HANA system. Figure 15 shows a couple examples of potential error messages that could appear.

Figure 15: Examples of error messages as a result of currency challenges

Opportunity: Feasibility Study and Pre-Check

Feasibility studies by users or consultants should be conducted to detect any changes to the configuration of currencies to understand the probable impact early in the project. Tools should be in place to manually compare objects present in the source and SAP S/4HANA systems by going through all relevant tables and identifying any differences.

Configuration change during the conversion challenge: This kind of challenge appears in large organizations working in dynamic environments and undertaking Brownfield projects, which usually range between one and two years. It is difficult to freeze the development environment for an extended time and only allow minimum mandatory changes. In data migrations, therefore, it is often challenging to have the same data in all the environments, with the same errors encountered during testing in the Sandbox system. In such situations, interference risks may arise. This places emphasis on a proper project management and process governance structure.

Opportunity: Management Control

This must be managed at the organizational level only and should be part of the discussion at the time of project planning. One option is to plan multiple mock runs before the final go-live, involving all stakeholders, and also to plan for a dry-run in the pre-production environment and involving all stakeholders.

Data integrity challenge: During migration, redundant or duplicated data that exists in the Universal Journal is common, which can render line items meaningless. This is a critical issue for table ACDOCA concerning duplicate entries, as table ACDOCA is not delivered with a primary key. Further, zero balances for documents with line items from the G/L need to be validated as the CO module (which is integrated with the Universal Journal) does not guarantee zero balance. Data inconsistency in the source system is another important reason for the lack of data Integrity.

Opportunity: Data Validation

Validation of each line item between SAP ECC and SAP S/4HANA is the best methodology to use to avoid data corruption. Below are few data validation methodologies that can be used:

1. **Sample data validation** takes a random selection of records from the SAP ECC system and compares them with the SAP S/4HANA system.

2. **Subsets of data validation** is where a random sample records is selected for verification or a subset of records based on row numbers, such as the first thousand records or ten thousand to fifty thousand records.

3. **Complete data set validation** compares every record in the target system.

Chapter Summary

For many enterprises, moving from SAP ECC to SAP S/4HANA is one of the most significant IT projects they will ever undertake. While it represents a potentially significant change to how you manage and run your business, it also presents many opportunities for you to make changes and updates in the way you manage your SAP data. These include:

- Improving financial data management processes to maximize the benefits of the Universal Journal

- Cleaning up and streamlining the data in your SAP system, which is especially relevant if you have been using SAP ECC for many years and have not undertaken previous system-wide data archiving

- Implementing new governance and controls

Chapter 10

Post-Migration System Tests and Checks

It is crucial to test and confirm the following steps before the go-live:

1. Reconcile and compare migrated data.

2. Set migration to complete.

3. Validate business processes to ensure successful migration.

4. Transfer application indexes.

5. Fill in due dates in FI documents.

6. Fill in the fields in the offsetting account of FI documents.

This chapter will detail how to perform these steps.

1. Reconcile and Compare Migrated Data

The following comparisons and reconciliations for the migrated data and ledgers should be performed to ensure that the migration has been done successfully and correctly:

1. Reconcile source ledger 0 with leading ledger 0L using transaction GCAC (ledger comparison).

2. If no leading ledger is in use, reconcile ledgers with the leading ledger 0L using transaction GCAC.

3. Compare the data and key figures after the migration with the data before the migration by running the following programs and transactions:

   - Program RFBILA00: Financial Statements
   - Program RAGITT_ALV01: Asset History Sheet
   - Program RAHAFA_ALV01: Depreciation Run for the Planned Depreciations
   - Transaction S_ALR_87013611: Totals Report for Cost Centers
   - Program RKKBSELL: Sales Order Selection
   - Program RFSSLD00: G/L Account Balance List
   - Program RFSOPO00: G/L Line Items List
   - Program RFBELJ00: Compact Document Journal
   - Program RFKUML00: Vendor Sales
   - Program RFKEPL00: Vendor Open Item List
   - Program RFKUML00: Customer Sales
   - Program RFDEPL00: Customer Open Item List
   - Program RFDAUB00: Customer Recurring Entry Original Documents

2. Set Migration to Complete

When the pre-migration and post-migration reconciliation reports have been matched successfully, the migration status can be set as "Complete." After the settings for the migration are completed, postings in the system can be made.

3. Validate Business Process to Ensure Successful Migration

All the important transactions and key business processes are executed to ensure the proper functioning of the new SAP S/4HANA system and validation of the master data and transaction data. Some of the key business processes to validate are:

- Journal entries and accruals postings
- The account determination logic in the GR/IR account
- Invoice and inventory-related postings
- Asset-related postings, such as asset acquisition, retirement, and the depreciation run
- Order-to-cash and procure-to-pay cycles
- Period-end closing activities
- FI reports and balances related to profit centers, cost centers, CO-PA, and financial statements

4. Transfer Application Indexes

This step transfers application indexes to the database "cold area" during the data aging process when business function DAAG_DATA_AGING is active. Transaction FINS_MIG_INIT_COLD can be used to start moving the indexes into the "cold' area of the database. Application indexes of archived documents stored in tables BSIS_BCK, BSAS_BCK, BSID_BCK, BSAD_BCK, BSIK_BCK, BSAK_BCK, FAGLBSIS_BCK, and FAGLBSAS_BCK are transferred into the "cold" area of the database.

5. Fill in the Due Dates in FI Documents

This step is executed to fill in the new Due Date field in the financial documents for customer and vendor line items. This must also be done for G/L account line items for which the Baseline Date field is part of the line-item posting. The following fields are filled:

- Field SK1DT (Due date for Discount 1)
- Field SK2DT (Due date for Discount 2)
- Field NETDT (Net due date)

6. Fill in the Fields in the Offsetting Account of Financial Documents

The following fields in the offsetting account of FI documents are filled:

- Field GKONT (Offsetting account number)
- Field GKART (Offsetting account type)
- Field GHKON (G/L offsetting account in the G/L)

Chapter Summary

Once you have made the migration from SAP ECC to SAP S/4HANA, it is imperative that you conduct system checks to ensure that your business is using historically consistent data. You do this by:

- Comparing data and results before and after migration

- Validating financial business processes and results

- Checking that all dates are valid and set properly

Conclusion

As this paper has demonstrated, the process of migrating your financial data from SAP ECC to SAP S/4HANA is a complex and, at times, a tedious one. However, with careful planning and a thorough knowledge of the tools and resources available to you, it is possible to efficiently and effectively make the move.

SAP has worked hard to provide a set of tools that address many of the most significant migration challenges with regards to data conversion from the table and field structure in SAP ECC to the new ones in SAP S/4HANA. Winshuttle provides a set of solutions that helps automate and simplify many of the ancillary tasks that are required for a smooth migration.

As you begin the journey from SAP ECC to SAP S/4HANA, it is important to understand what is changing in the new system and how best to approach the migration for your finance department. Some of the key things to consider include:

- The implications of the Universal Journal (ACDOCA) on your finance organization and how to prepare your SAP ECC data for the change

- Mandatory implementation of the material ledger in SAP S/4HANA and the steps necessary for your current data if you have not implemented the material ledger in SAP ECC

- What effects the CO-PA change to account-based profitability analysis has on your accounting team and how to most effectively manage the transition for your accounting teams

- How to create a realistic migration roadmap with timelines that match your business needs

For many of these migration processes to be successful, you need to review, correct, and update much your SAP ECC system data. Some of these changes can be accomplished with SAP applications, but many of them require either managing data manually or implementing a solution like Winshuttle. Winshuttle software not only helps automate many of the data update processes but also offers solutions that enable you to comply with established rules for data handling during your migration.

This process of data cleansing, management, and planning significantly increases the chance that the migration of your financial operations from SAP ECC to SAP S/4HANA will be a successful one. If you need help with any of these steps and are looking for expertise in this area, ERPfixers offers the largest network of independent SAP consultants in the world who can help answer any questions or offer assistance with your migration.

For more information about migrating your finance organization from SAP ECC to SAP S/4HANA:

Winshuttle
www.winshuttle .com/s4hana

ERP Fixers
www.erpfixers.com

Appendix A

This table lists all of the SAP applications and programs that are available for making the migration from SAP ECC to SAP S/4HANA. Each application and program includes a brief description as well as what stage of the migration it is used and whether it is used in SAP ECC, SAP S/4HANA, or both.

PROGRAM/APPLICATION	FUNCTION	STAGE OF CONVERSION	ECC OR S/4?
Program RFBILA00	The financial statements report	Preparation Phase	Both
Transaction S_ALR_87013611	The actual/plan/variance report for cost centers	Preparation Phase	Both
Transaction S_ALR_87012993	The actual/plan/variance report for internal orders	Preparation Phase	Both
Program RFSSLD00	The G/L account balance list	Preparation Phase	Both
Program RFSOPO00	The G/L line-items list	Preparation Phase	Both
Program RFBELJ00	The compact document journal for G/L transactions	Preparation Phase	Both
Program RAGITT_ALV01	The asset history sheet	Preparation Phase	Both
Program RAHAFA_ALV01	The depreciation run for planned depreciation	Preparation Phase	Both
Program RFKUML00	The vendor sales report	Preparation Phase	Both
Program RFKEPL00	The Vendor Open Items list	Preparation Phase	Both
Program RFDUML00	The customer sales report	Preparation Phase	Both
Program RFDEPL00	The customer open-items list	Preparation Phase	Both
Program RFDAUB00	The customer recurring entry original documents	Preparation Phase	Both
/SDF/RC_START_CHECK	Pre-transition checks for financials	Preparation Phase	Both
TFC_COMPARE_VZ	Reconciles the new G/L and the AR and AP subledgers	Preparation Phase	Both
RAABST02	Reconciles the G/L with AA for the leading valuation and parallel valuation	Preparation Phase	ECC
RAABST01	Reconciles the G/L with AA for the leading valuation and parallel valuation	Preparation Phase	ECC
RGUCOMP4	Compares ledgers with the new G/L	Preparation Phase	Both
RM07MBST, RM07MMFI	Reconciles MM with the G/L	Preparation Phase	Both
FAA_GL_RECON	Reconciles the G/L with New Asset Accounting	Preparation Phase	Both

FBV3/ Program RFTMPBLD.	Posts or deletes all "Held" documents	Preparation Phase	ECC
RMMMPERI	Closes material master period	Preparation Phase	ECC
RAPERB2000	Closes periodic assets posting	Preparation Phase	ECC
FAGLGVTR	G/L balance carry forward program	Preparation Phase	ECC
AJRW	Fixed assets balance carry forward program	Preparation Phase	ECC
F.07	AR/AP carry forward program	Preparation Phase	ECC
RAPOST2000	Executes periodic depreciation posting run	Preparation Phase	ECC
CVI_FS_CHECK_CUSTOMIZING	Checks CVI customizing errors	Preparation Phase	ECC
PRECHECK_UPGRADATION_ REPORT	Pre-upgrade check for CVI	Preparation Phase	ECC
MFLE_CLS4H_CHECKS_CC	Extends Material Number field length	Preparation Phase	ECC
MRP_AREA_STORAGE_LOC_ MIGRATION	Checks MRP storage location	Preparation Phase	ECC
FINS_MIG_PRECHECK_CUST_ SETTNGS	Pre-conversion check of G/L customizing	Preparation Phase	ECC
RFINDEX_NACC	Table inconsistency check	Preparation Phase	ECC
FAGL_FC_VALUATION	Foreign currency valuation	Preparation Phase	ECC
RASFIN_MIGR_PRECHECK,	AA pre migration check	Preparation Phase	ECC
Maintenance Planner	Checks for add-ons and business functions	Preparation Phase	ECC
SI Check	Checks for simplification items	Preparation Phase	ECC
FINS_RECON_RC0	Analyzes transactional data	Migration Phase	S/4
FINS_MIG_MONITOR_RC0	Displays status of transactional data	Migration Phase	S/4
GCC Check Consistency of G/L Accounts and Cost Elements	Checks G/L accounts and cost elements are consistent before migration	Migration Phase	S/4
GCM G/L Account and Cost Element Merge	Merges the cost elements into GL account master data	Migration Phase	S/4
DAA Default Assignment of Cost Elements	Transfers default assignments in the former cost element master table (CSKB) to the default account assignments	Migration Phase	S/4
R20 Reconciliation of Transactional Data	Checks that FI documents are consistent and ready to be migrated	Migration Phase	S/4
ENR Enrich Transactional Data	The "data enrichment" program, which is required due to the merge of FI and CO documents	Migration Phase	S/4
R22 Check enrichment of transactional data	Corrects any errors (from above) that are displayed	Migration Phase	S/4

MUJ Data Migration into Unified Journal	Migrates line items from BSEG or FAGFLEXA, COSP, COSS, ANEX and ANEP into ACDOCA	Migration Phase	S/4
R23 Check Migration of Journal Entry	Shows the results (any errors must be corrected and migration restarted)	Migration Phase	S/4
M10 Migrate Material Ledger Master Data	Ensures that the material ledger is activated for all valuation areas	Migration Phase	S/4
M20 Check Material Ledger master data	Checks results from previous step	Migration Phase	S/4
M11 Migrate Material Ledger Order History	Ensures that all existing PO records are converted into the material ledger currencies (If material ledger was not active in any valuation area before the SAP S/4HANA conversion)	Migration Phase	S/4
M21 Migrate Check ML Production Order and Purchase Order History	Checks results of previous step	Migration Phase	S/4
DLT Data Migration into Unified Journal	Aggregates Deltas (i.e. documents not originally in the FI tables) into the Universal Journal	Migration Phase	S/4
R24 Check Migration of Balances	Checks the results from previous step and display errors	Migration Phase	S/4
AFA Initial Depreciation Calculation	Builds the initial depreciation values for AA	Migration Phase	S/4
R25 Check Initial Depreciation Calculation	Checks results from previous step	Migration Phase	S/4
Transaction FINS_MIG_INIT_COLD	Transfers application indexes	Post Migration	S/4
Transaction FINS_MIG_DUE	Fills due dates in FI documents	Post Migration	S/4
Transaction FINS_MIG_GKONT	Fills offsetting account in FI documents	Post Migration	S/4
FINS_MIG_MONITOR_GKO	Displays the status of filling offsetting account in FI documents	Post Migration	S/4
PRC_MIG_POST_PROCESSING	Processes post-conversion post	Post Migration	S/4
FINS_CUST_CONSISTENCY_CHECK	Reconciles and compares migrated data	Post Migration	S/4
Enrichment of Balance Carry Forward	Optional steps, which can be executed anytime after balance migration	Post Migration	S/4

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Appendix B

Introducing Winshuttle's solutions

Winshuttle offers two solutions for automating SAP ERP processes:

WINSHUTTLE Studio

DESKTOP-BASED

Desktop-based automation solution for SAP ERP processes.

- Create automation scripts to exchange data with SAP using Winshuttle Transaction, Query, and Direct functionality.

- Map scripts and embed business rules to Excel workbooks.

WINSHUTTLE Foundation

SERVER-BASED

Adds the functionality of server-based user governance and workflow automation to the SAP-specific RPA capabilities of Studio.

- Create role-based web forms
- Create advanced workflows
- Map scripts and embed business rules into Excel workbooks or web forms
- Schedule data exchange tasks
- Set data exchange policies
- Get process analytics
- Get information for auditing
- Manage user access and Winshuttle licenses

In addition to automating the posting of data into SAP, Winshuttle Studio also enables you to extract data from SAP through our Winshuttle Query capabilities. Like Winshuttle Transaction, Query is designed for business users and doesn't require SAP technical skills like SQVI. Often Winshuttle customers use Query and Transaction in sequence as part of what we refer to as a "round trip."

Winshuttle Studio also includes Winshuttle Direct, functionality that enables data exchange with SAP through using BAPIs and remote-enabled function modules. Direct avoids many of the problems that can occur in general-purpose bots caused by changes in the SAP system, especially with upgrades of the SAP GUI.

WINSHUTTLE.

Founded in 2003, Winshuttle is a global company with sales and support offices worldwide. For more information about Winshuttle solutions or to contact a representative near you, please visit www.winshuttle.com.

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